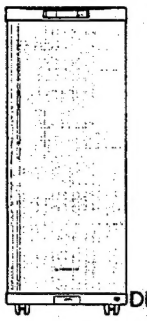
Service Manual

PIONEER®
The Art of Entertainment



DRM-5004X

The chapter 1 of this Service Manual will not be reprinted. On your additional orders, we may supply only the chapter 2. For the chapter 1, please make copies and attach to the chapter 2 at your side if necessary.

CD-ROM CHANGER
DRM-5004X

CD-ROM DRIVE UNIT
DR-D504X

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model		Power Requirement	The voltage can be converted by the following method.
	DRM-5004X	DR-D504X		
PUCGM	○	—	AC 120V/230V	with the voltage selector
ZUCEB/WL	—	○	DC power supplied from other system	————

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CHAPTER 1

1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

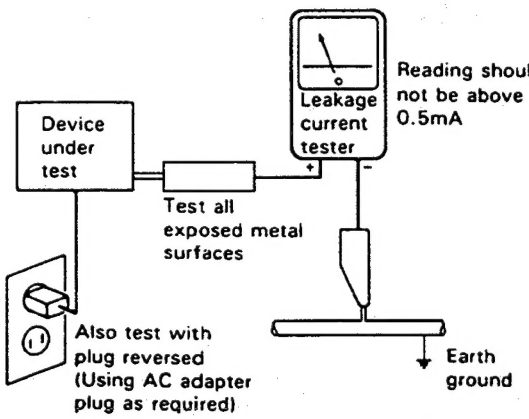
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

(FOR EUROPEAN MODEL ONLY)

VARO!
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

ADVERSEL:
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSAETTELSE FOR STRÅLING.

VARNING!
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

LASER
Kuva 1
Lasersateilyn varoitusmerkki

WARNING!
DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.

IMPORTANT
THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 5 mw
WAVELENGTH: 780-785 nm

LASER
Picture 1
Warning sign for laser radiation

LABEL CHECK

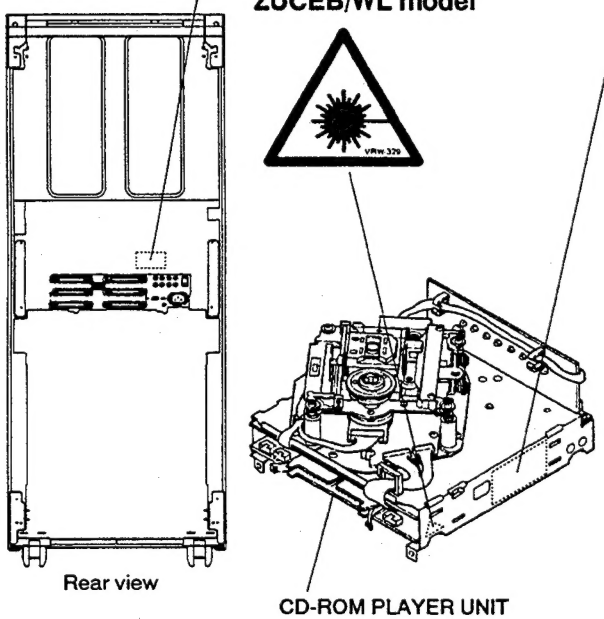
PUCGM model

CLASS 1 LASER PRODUCT
LASER KLASSE 1
ORW1129

ZUCEB/WL model

ADVARSEL
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHED SAFBRYDERE ER UDE AF FUNKTION.
UNDGÅ UDSÆTTELSE FOR STRÅLING.
VORSICHT!
UNSICHTBARE LASER-STRAHLUNG TRITT AUS, WENN DECKEL (ODER KLAPPE) GEÖFFNET IST! NICHT DEM STRAHL AUSSETZEN!
VRW1094

ZUCEB/WL model



Rear view

CD-ROM PLAYER UNIT

Additional Laser Caution

1. The ON/OFF (ON : low level, OFF : high level) status of the $\overline{\text{CLMPE}}$ signals for detecting the loading state are detected by the drive CPUs, and the design prevents laser diode oscillation when the $\overline{\text{CLMPE}}$ signal turns OFF.
   In normal operation, if no disc is clamped, the laser diode oscillation is disabled.
   However, the interlock does not always operate in the test mode. *
2. When the door or cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 laser beam.

* : Refer to page 1 - 11.

2. SPECIFICATIONS

General

System ..... CD-ROM changer
Disc ..... 12cm/5-inch CD-ROM disc
12cm/5-inch CD audio disc
Power requirements ..... AC 120 V/230 V (switchable).
50/60 Hz
(Japan model : AC 100 V. 50/60 Hz)
Power consumption ..... 60 W
Weight (with disc magazine, without discs) ..... 77 kg
167 lb 9 oz
Dimensions ..... 453 (W) × 507 (D) × 1159 (H) mm
17 - 27/32 (W) × 19 - 31/32 (D) × 45 - 5/8 in
Operating temperature ..... + 5° C ~ + 40° C
+ 41° F ~ + 104° F
Operating humidity ..... 10 % - 80 % (no condensation)
Storage temperature ..... - 20° C ~ + 50° C
+ 4° F ~ + 122° F

Input/output

Interface ..... conforming to SCSI 2
Audio output ..... L/R × 4

Functions

Disc storage (12 cm/5-inch discs) ..... 500 discs
Removable disc magazines
··· 5 magazines which hold 100 discs each can be stored.

Accessories

Disc magazine 5
Shipping plate 5
Power cord 1
Conversion plug 1
SCSI bus terminator 1
Door key (for front door locking) 2
Support panel 2
Support panel mounting screws 6
Follow-up card (except for Japan model) 1
Service network sheet (Japan model only) 1
Warranty card (Japan model only) 1

NOTE:

- *The disc magazines are packed separately from the changer body.*
- *Specifications and design subject to possible modifications without notice, due to oimprovements.*

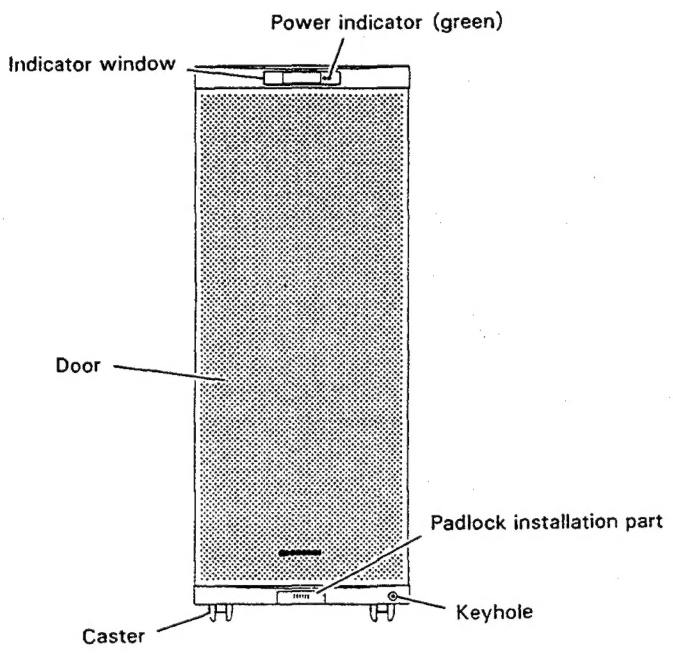
Maintenance

In order to ensure safe and proper functioning of this unit, we recommend regular maintenance. Extended service life can be expected if maintained properly.

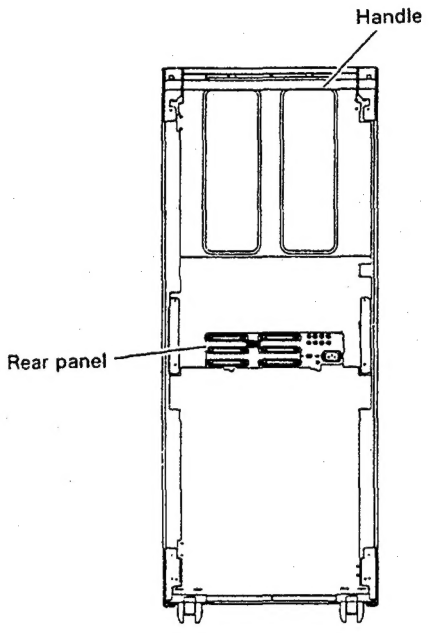
● Always use our service for the installation when a CD-ROM drive is to be added to this unit.

3. PANEL FACILITIES

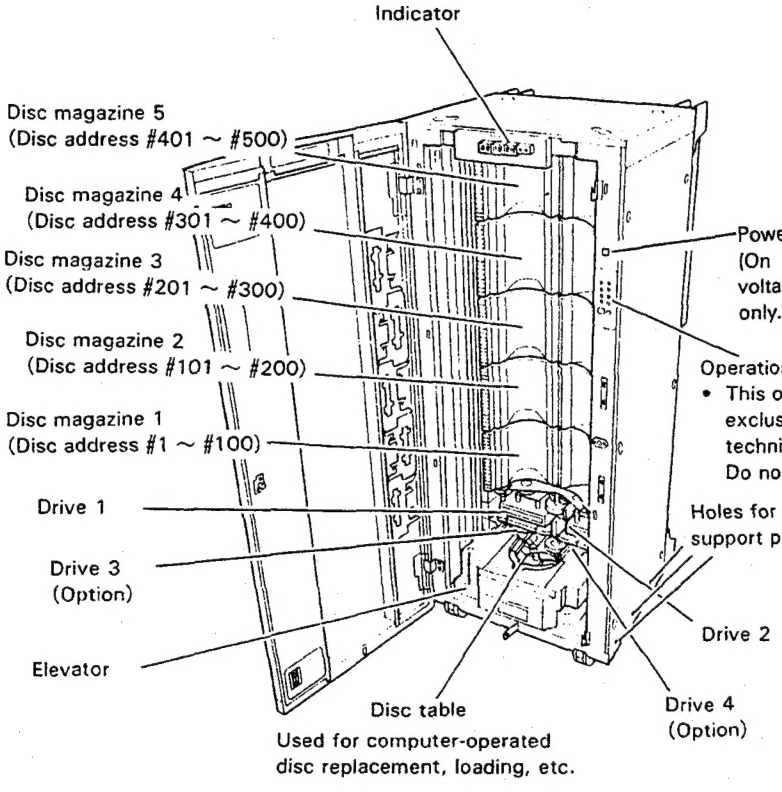
[Front Panel]



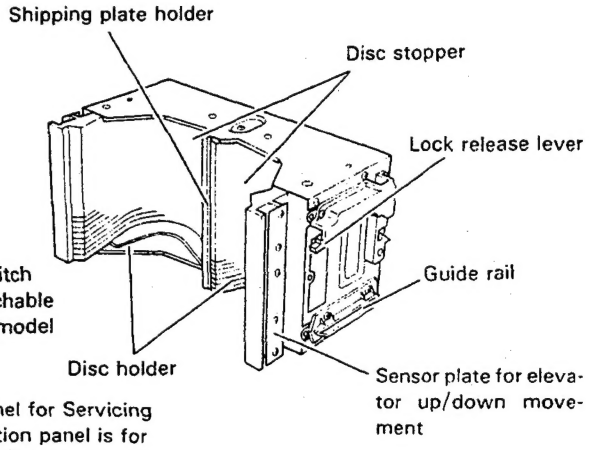
[Rear Panel]



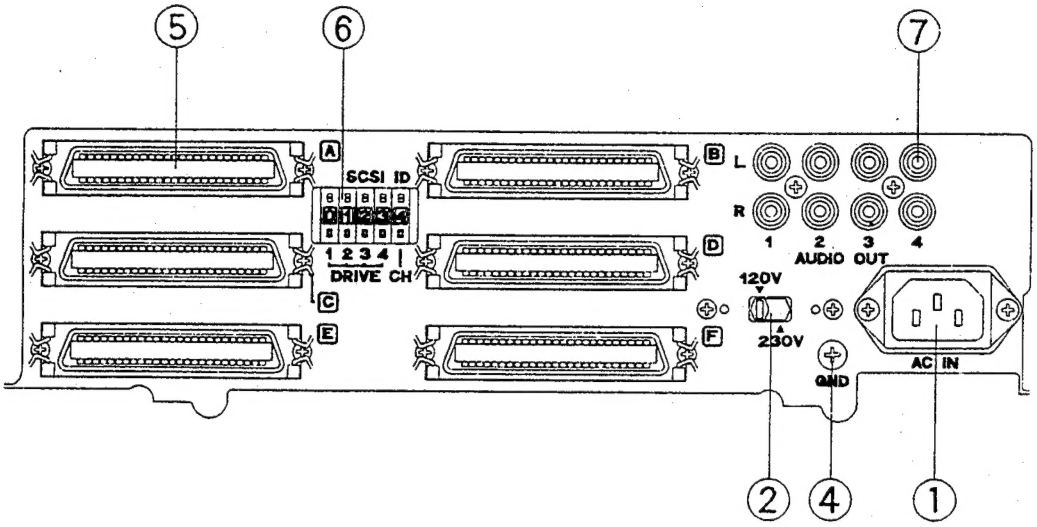
[Door fully open]



[Disc magazine]



[Real Panel]



(1) Power connection

Connect the power cord. (Make sure you use the accessory power cord.) The unit comes with a converter plug, which should be used to suit the shape of the power outlet.

(2) Voltage selector switch (Not equipped on the AC100V exclusive-use model)

When this unit is used in a 100V – 120V region, set the switch to 120V, and when it is used in a 220V – 240V region, set the switch to 230V.

(4) GND terminal

Use this terminal to ground the unit.

(5) Interface connector

This is an amphenol 50P connector for SCSI. The built-in changer controller and 2 CD-ROM drives are connected by a daisy-chain between connectors A and B. Connectors C and F are spare connectors.

(6) SCSI ID switch

Sets the changer controller and CD-ROM drive SCSI ID.

(7) Audio output terminal

Outputs the digital audio compact disc audio.

4. DISASSEMBLY

• DISASSEMBLY THE SWING FULL ASSY

1. Open the door.
2. Remove the four screws ① and detach the VD cover.
3. Pull out the flexible cord C ② from the connector.
4. Turn the CSL gear 2 ③ counterclockwise and slide the Chuck assy toward the front.
5. Loosen the screw in the hole ⓐ using a Phillips screwdriver.
6. Push the lock spring ④ toward the front.
7. Pull the swing assy upward and out.

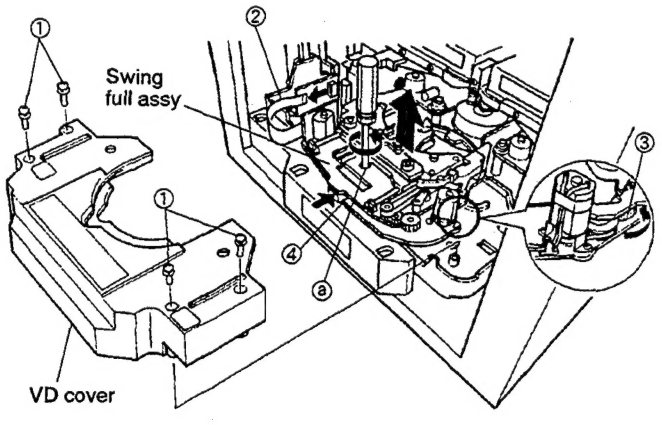


Fig.1 Disassembly the swing full assy

• DISASSEMBLY THE ROM CLAMPER FULL ASSY

1. Open the door and move the carriage base assy upwards.
2. Disconnect the relay connector ①.
3. Remove the three screws ②.
4. Pull out the ROM clamper full assy horizontally to the front.

(When disassembly the clamper full assey, be careful not to drop it onto the CD-ROM player. Also, take care not to bend the CDP slits fixed to the slit holder (L) and (R).

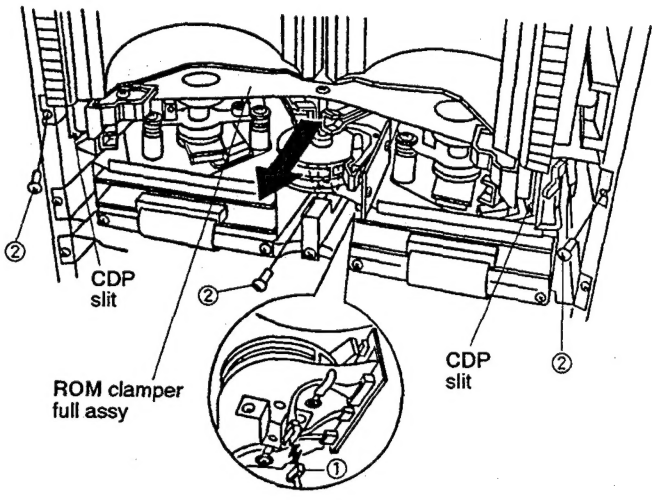


Fig.2 Disassembly the ROM clamper full assy

• DISASSEMBLY THE CD-ROM PLAYER (on the left side)

(The procedure is the same for the player on the right side)

1. Open the door and move the carriage base assy upwards.
2. Remove the ROM clamper full assy (see the above description).
3. Pull to remove the wires from the cord clamp and disconnect the five connectors ①.
4. Remove the two screws ② and move the CD-ROM player toward the front while pulling up the front side of the player about 2 mm.

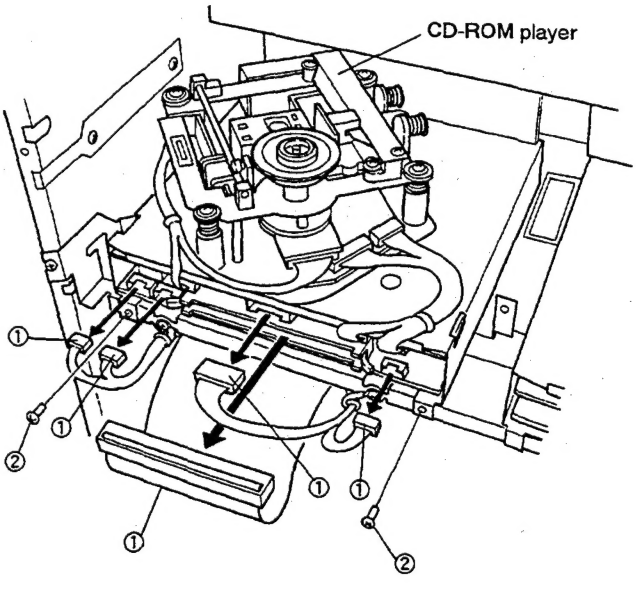


Fig.3 Disassembly the CD-ROM player

• DISASSEMBLY THE GEAR BOX ASSY

1. Open the door, remove the six screws ① and detach the side plate R ②.
2. Detach the motor cover ③ and connectors ④ and ⑤.
3. Loosen the two screws ⑥ and remove the uppermost disc stocker ⑦.
4. Slide the gear box to the front and pull the timing belts ⑨ off VD pulley A ⑩.
5. Remove the gear box spring ⑧.
6. Remove two screws ⑥ and remove the gear box assy.

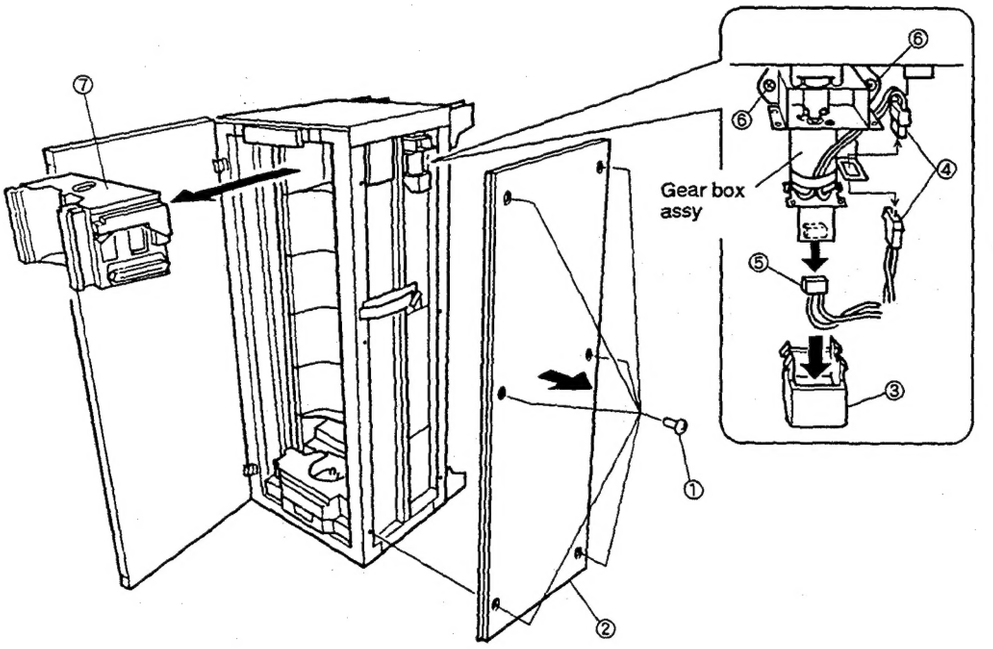


Fig.4 Disassembly the gear box assy (1)

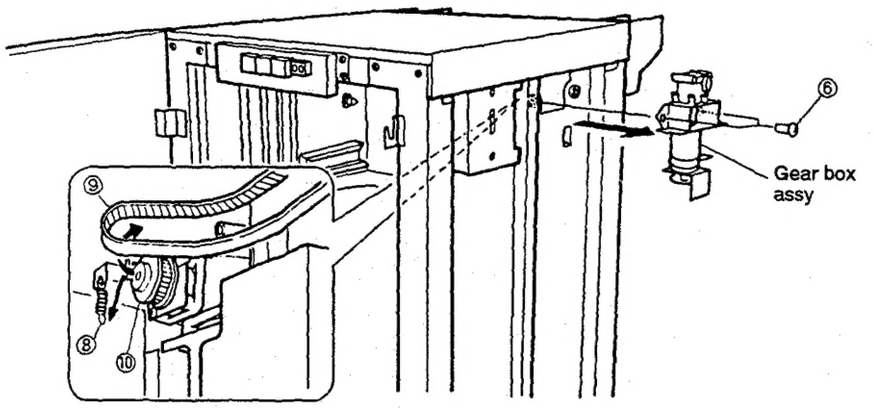


Fig.5 Disassembly the gear box assy (2)

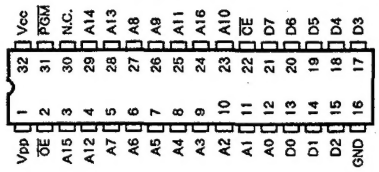
5. IC INFORMATION

- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

■ DYW1371 (IC36 : ROMB unit)

•One-Time Program ROM

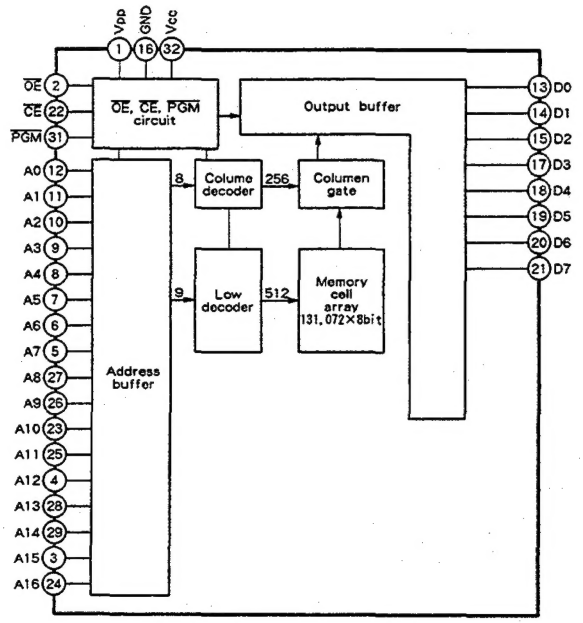
• Pin Arrangement (Top view)



• Pin Function

No.	Pin Name	Function
3-12, 23-29	A0~A16	Address input
13~15, 17~21	D0~D7	Data input and output
22	$\overline{CE}$	Chip enable input
2	$\overline{OE}$	Output control input
31	$\overline{PGM}$	Program control input
32	Vcc	Power supply (+5V)
1	VPP	Program power supply
16	GND	Ground
30	N.C.	Not used

• Block diagram

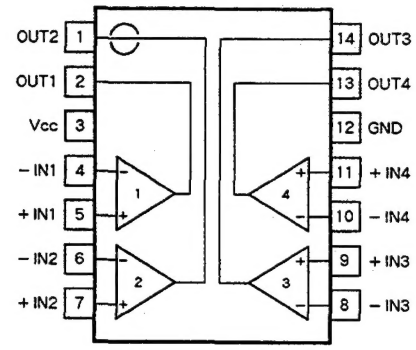


• Operation Mode

Read / Pin Name	PGM	CE	OE	Vpp	Vcc	D0-D7	Power
Lead	H	L	L	5V	5V	Data output	Active
Output deselect	Hor L	Hor L	H			High-Impedance	
Stand by	Hor L	H	Hor L			High-Impedance	Stand by
Program	L	L	H	12.75V	6.25V	Data Input	Active
Program Inhibit	Hor L	H	Hor L			High-Impedance	
	H	L	H			High-Impedance	
Program Verify	H	L	L			Data output	

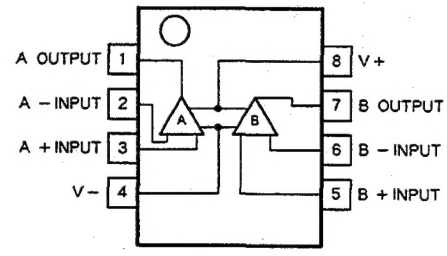
■ BA10339F (IC106 : CMCB unit)

• Block Diagram (Top View)



■ NJM4565M (IC104, IC105 : CMCB unit)

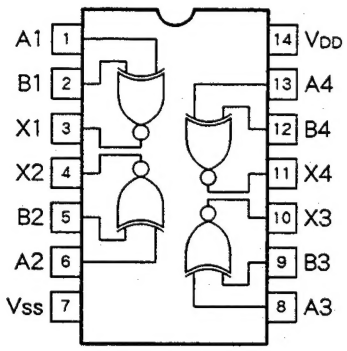
• Block Diagram (Top View)



■ TC4077BF (IC102 : CMCB unit)

•Quad Exclusive-Nor Gate

• Block Diagram (Top View)



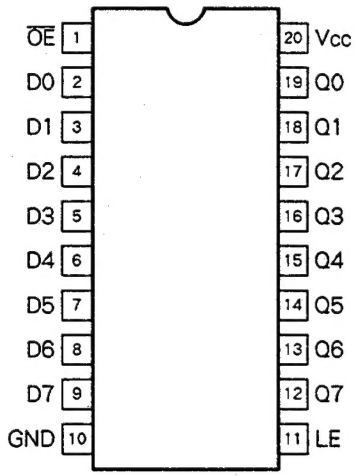
• Truth Table

INPUTS		OUTPUTS
A	B	X
L	L	H
L	H	L
H	L	L
H	H	H

■ TC74AC573F(IC507, IC508 : CMCB unit)

•Octal d-Type Latch with 3-State Output

• Pin Arrangement (Top View)



• Truth Table

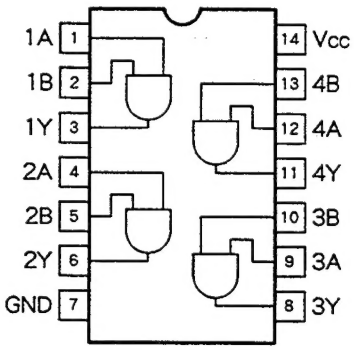
INPUTS			OUTPUTS
$\overline{OE}$	LE	D	Q
H	X	X	Z
L	L	X	On
L	H	L	L
L	H	H	H

X : Don't care
Z : High-Impedance
On : Q output level before LE will be "L".

■ TC74AC08F (IC513 : CMCB unit)

•Quad 2-Input and Gate

• Block Diagram (Top View)



• Truth Table

A	B	Y
L	L	L
L	H	L
H	L	L
H	H	H

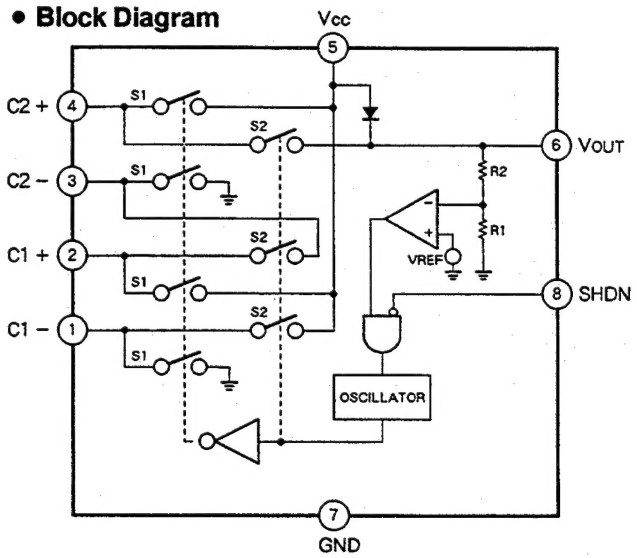
■ MAX662CSA(IC515:CMCB UNIT)

•+12V, 30mA Flash Memory Programming Power supply

• Pin Function

No.	Pin	Function
1	C1 −	Negative pin of the first stage charge pump capacitor.
2	C1+	Positive pin of the first stage charge pump capacitor.
3	C2 −	Negative pin of the second stage charge pump capacitor.
4	C2+	Positive pin of the second stage charge pump capacitor.
5	Vcc	Power supply voltage.
6	VOUT	+12V output voltage. VOUT=Vcc at shut-down mode.
7	GND	Ground
8	SHDN	Active high CMOS logic level shut-down input. SHDN is pulled-up into Vcc. Connect to GND in the normal operation. Charge pump is turned off in the normal operation, VOUT=Vcc.

• Block Diagram



6. TEST MODE

FUNCTIONS

All functions of test mode can be controlled by 8 keys in middle right section. DIP and rotary switches below 8 keys are not used in test mode. There 5 digit 7-segments LEDs in top section that shows selected mode number, sub-mode number and and address or status. Vertical address is assigned to each disc tray and CD-ROM drive. These address data is not the same as element address data is SCSI commands. Locations of 8 keys and LEDs are as shown below.

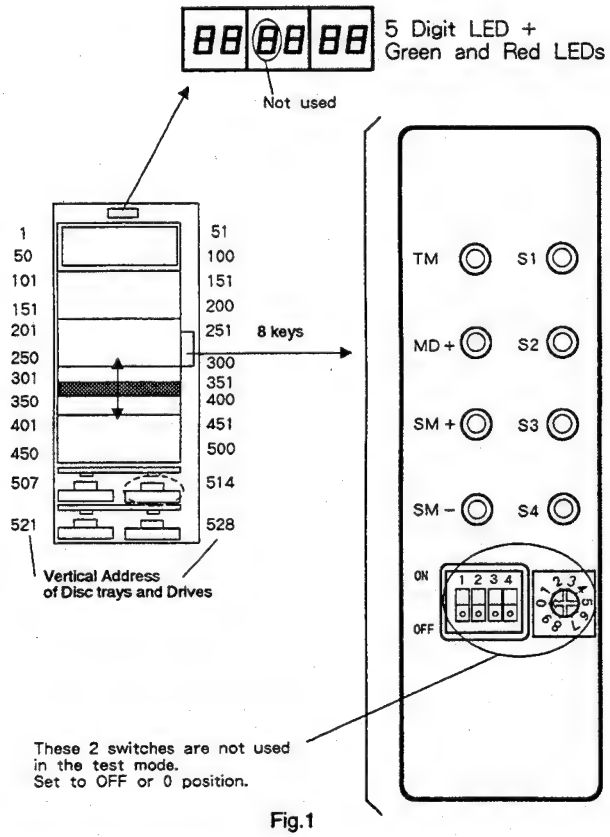


Fig.1

There are 6 modes and each mode has several sub-modes as shown below.

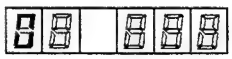
Table 1

Mode	Sub-mode	Function
0	0 1 2 3	Version Display Unit installation status Status display for the DIP switch and rotary switch 7-segment LED check
1	0 to F	Error history in RAM
2	0 to F	Error history in EEPROM
3	0 to 5	Manual mode
4	0 to 5	Step operation mode
5	0 to 5	Aging mode
6	0 to 5	Mode to check the accumulated time and the number of iterations of an operation

HOW TO ENTER THE TEST MODE

To enter the test mode, open the door and press TM key for more than 3 seconds.

After the test mode is activated, mode 0 and sub-mode 0 is automatically selected and LED display is changed as shown below.



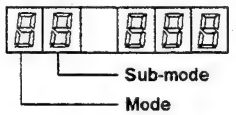
Lower 4 digits shows current version number. It is the same as Revision Level in SISI Inquiry data.

HOW TO SELECT MODE AND SUB-MODE

To select available mode, push MD+ key. Whenever MD+ key is pressed, mode number is incremented as 0-1-2-3-4-5-0.

To select available sub-mode, push SM+ or SM - keys. Whenever SM+ key is pressed, sub-mode number is incremented. When SM - key is pressed, sub-mode number is decrement.

Selected mode and sub-mode numbers are shown in LEDs as shown below.



After test mode is activated, mode 0 and sub-mode 0 are selected. To select sub-mode 1, press TM+ key.

LED display in sub-mode 1 of mode 0 shows current status of 4 drives and 5 disc stockers as shown below.

Lower 3 digits shows installed drive units and in this case, upper 2 drives are installed. Each dot shows detected disc stocker.
When all 5 stocker are set, 5 dots are turned on.

If all 4 drives are installed, LED display becomes

Model 1 (Error History in RAM)

In this mode, sub-mode number can be used to select one of 16 records from 0 to F.0 is latest error. Lower 2 digits shows error code in HEX and third digit shows how many bytes are displayed in lower 2 digits. Normally, it is 1.

As error history in model is stored in RAM, all data is lost after power is turned off.

Mode 2 (Error History in EEPROM)

LED display in mode 2 is the same as that in model, however, error history is stored in EEPROM in mode 2. Data is not lost when power is turned off. To clear contents of EEPROM, push S4 key for more than 3 seconds.

Mode 3 (Manual Operation)

In this mode, sub-mode number shows one of mechanical section and push SM+ or SM - key to select mechanical section. While one of S1 to S4 keys is pressed, the motor is rotated to assigned direction. The motor is automatically stopped when stop position is detected.

Table 2

Sub-mode	Mechanism	S1	S2	S3	S4
0	Vertical	UP	DOWN		
1	Swing	LEFT	CENTER	RIGHT	
2	Slide	EXTEND	CENTER	FRONT	
3	Chuck	OPEN	CLOSE		
4	Upper Clamper	CCW	CW		
5	Lower Clamper	CCW	CW		

Example of LED display in mode 3

3 0 1 2 3 Lower 3 digits shows current vertical address.

Mode 4 (Step Operation Mode)

In this mode, sub-mode number shows one of mechanical section and push SM+ or SM - key to select mechanical section as in mode 3. However, one of S1 to S4 keys is pressed, the mechanism moves to the next stop position and stops.

Table 3

Sub-mode	Mechanism	S1	S2	S3	S4
0	Vertical	Address ?00	Address 0?0	Address 00?	Execute
1	Swing	LEFT	CENTER	RIGHT	
2	Slide	EXTEND	CENTER	FRONT	
3	Chuck	OPEN	CLOSE		
4	Upper Clamper	L Clamp	L Open	R Clamp	R Open
5	Lower Clamper	L Clamp	L Open	R Clamp	R Open

LED display is the same as mode 3.

Mode 5 (Aging Mode)

Table 4

Sub-mode	Operation	S1	S2	S3	S4
0	Mode-A				START
1	Mode-B				START
2	Mode-C				START
3	Aging time of Mode-B	Hour ?00	Hour 0?0	Hour 00?	
4	Aging cycle of Mode-A	Cycle?00	Cycle0?0	Cycle00?	
5	Start position change	Address ?00	Address 0?0	Address 00?	

All 5 disc stocker should be set for aging mode operation. Make sure that SCSI ID of CD-ROM drive is set from 1 to 4 and each drive has different ID. There is no limit on numbers and location of drive for aging mode operation. According to the number of available drive and their location, actual operation is automatically changed.

8 discs are required for Mode-A and Mode-B. 500 discs are required for Mode-C. If the front door is opened, aging operation is not started.

Mode-A

Set 8 discs in 1 to 4 (vertical address) and 51 to 54, then press S4 key to start aging operation.

Operation of 1 cycle

A disc in address 3 is moved to left bottom drive. It is started up and played for 15 seconds of inside area and 15 seconds of outside area by 4 times speed mode. While the disc in address 3 is played, A disc in address 53 is moved to right bottom drive, and a disc in address 1 is moved to left top drive, and a disc in address 51 is moved to right top drive. Those 3 discs are also played as the first disc.

After played back, all discs are returned to original +2 address. The disc from address 3 is returned to address 5 and the disc from address 53 is returned to address 55. (Address 1 to 3 and address 51 to 53)

If all 4 drives are not installed, discs are not moved to drive position and they are directly moved to original +2 address. If 2 drives are installed, 2 of 4 discs are moved to drive position and played.

This competes one operation cycle and second cycle is started. In second and third cycle, discs are moved and clamped however, they are not played back by available drives.

In other word, operation of changer mechanism are the same in every cycle, however, discs are played in one of 3 cycles.

After 500 cycles are repeated, aging mode is stopped.

Mode–B

Operation of 1 cycle is the same as mode–A. In second and third cycle, discs are not moved to drive position and they are directly moves to original +2 address.

After 6 hours of aging operation, it is stopped.

Mode–C

500 discs are required and discs are always returned to their original address in this mode.

After aging operation is started, if S4 is pressed, changer does not start next cycle and stops in all 3 modes.

Aging time of mode–B can be set by selecting sub-mode 3. Hours can be set by S1 to S3 keys. If set to 0, only 1 cycle is operated.

Repeated cycles of mode–A can be set by selecting sub-mode 4. Cycles can be set by S1 to S3 keys. If set to 0, only 1 cycle is operated.

All aging operation is started from the top disc tray. In sub-mode 5, the starting disc position can be changed by setting offset number. It can be set from 0 to 249 by S1 to S3. The offset correspond to the number of unused discs in left side of disc stocker. For example, when aging is started from the first disc in third disc stocker from the top, the offset number is 100.

LED display during aging operation

After aging operation is started, mode and sub-mode numbers are not shown in LED. Instead, lower 3 digits shows repeated cycles and upper 2 digits shows step number (HEX).

LED display after aging is finished without error

After aging operation is finished without error, green LED is blinked and the number of repeated cycles are shown in lower 3 digits. Upper 2 digits returns to mode number display.

LED display when error is detected during aging

When error is detected, red LED is blinked and step number (HEX) is shown in upper 2 digits. This step number shows what kind of operation is done when error is detected. Lower 3 digits shows how many cycles are repeated before error is detected.

Whenever any one of mechanical elements is moved, its status is written into EEPROM by control software (firmware) in DRM-5004X. And so, when power is turned off, mechanical status of changer is recorded in EEPROM. When power is turned on, changer returns to its recorded status. For example, if a disc is clamped in left top drive when power is turned off and on, the disc is clamped.

This operation is different from other Autochanger such as LC-V800 and LC-V330. Those changers have initial mechanical status and if a disc is clamped when power is turned on, it is returned to the original disc tray.

Mode–6 (Mode to check the accumulated time and the number of iterations of an operation)

- Sub-mode 0 (Display of the power-on time)
  Shows the total accumulated time of the power-on status of the changer.
- Sub-mode 1 (Display of the playing time of Player #1)
  Shows the accumulated time of disc playback on Player #1.
- Sub-mode 2 (Display of the playing time of Player #2)
  Shows the accumulated time of disc playback on Player #2.
- Sub-mode 3 (Display of the playing time of Player #3)
  Shows the accumulated time of disc playback on Player #3.
- Sub-mode 4 (Display of the playing time of Player #4)
  Shows the accumulated time of disc playback on Player #4.
- Sub-mode 5 (Iteration display)
  Shows the number of disc-change operations of the changer. In normal operation, one operation of this changer corresponds to one MTBF value shown in the specifications.

Values in test mode 6 are obtained in eight decimal digits. Each 2 digits are displayed by clicking the corresponding one of the keys S1 through S4.
S1 corresponds to the uppermost 2 digits, S2 the second upper 2 digits, S3 the second lower 2 digits and S4 the lowermost 2 digits.
For example, when S1 shows 00, S2 shows 01, S3 shows 47 and S4 shows 25 in sub-mode 5, the number of iterations of the operation is 00014725 or 14,725.

7. ADJUSTMENTS

7.1 MECHANINICAL ADJUSTMENT

1. The Following Tools are Required

- Phillips screwdriver for M3
- Phillips screwdriver for M2.6
- Flat blade screwdriver
- 2.5mm HEX driver
- 1.5mm HEX driver

2. Preparation

1. Turn off the power and open the door.
2. Remove VD cover and disc stocker in top position.
3. Enable the test mode and select step operation mode.

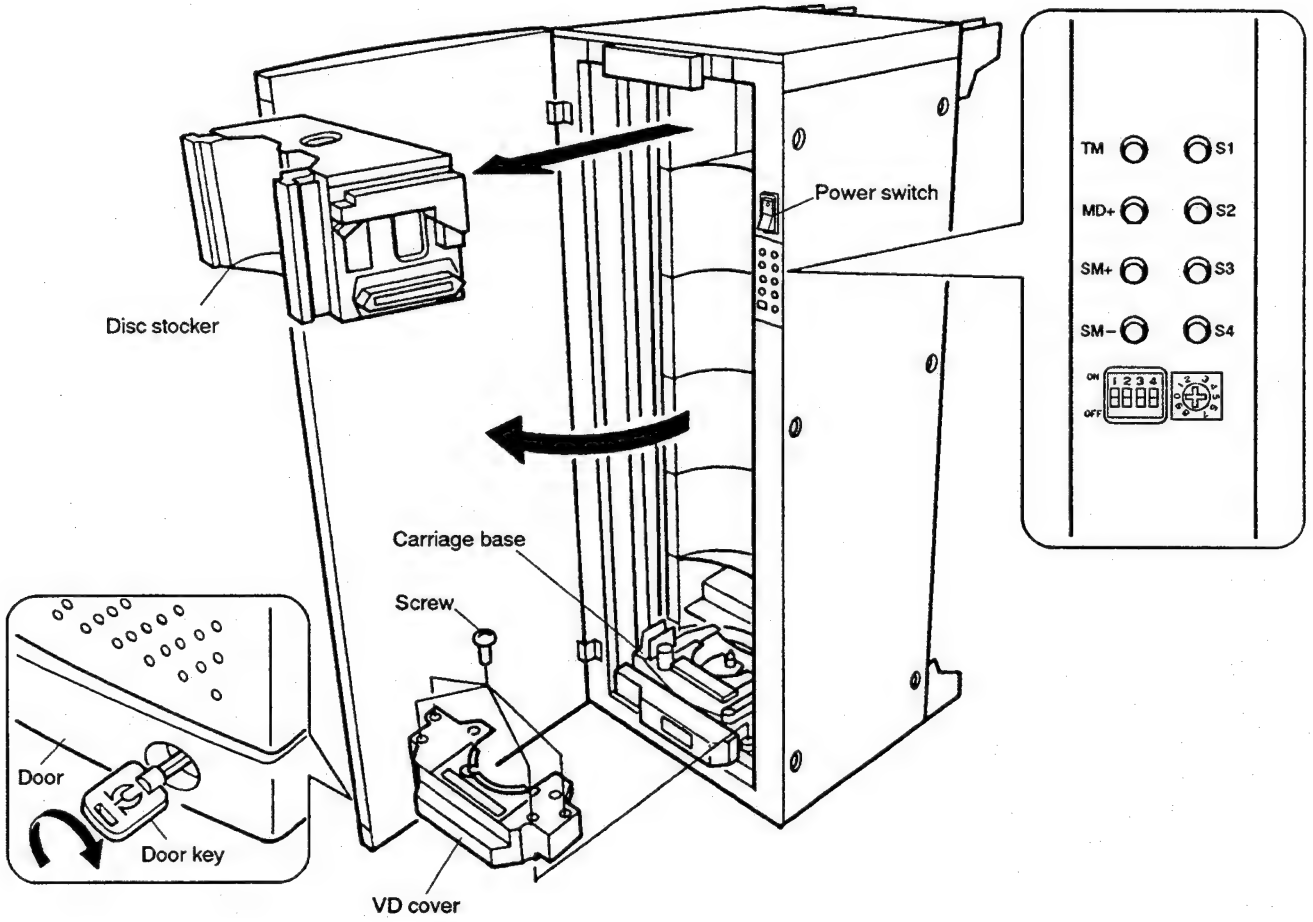


Fig.1 Preparation of adjustment

3. Adjustment

3.1 Horizontal Adjustment of Disc Carriage Base

1. Move the carriage base to vertical address 225. If it cannot find correct vertical address, turn the vertical motor by finger.
2. Rotate the vertical motor by finger so that the vertical position indicator of carriage base is the same height as the reference height of disc rack (L).
3. Take a look at the reference height of disc rack (R) and make sure that height difference is within ± 0.5mm.
   If OK, proceed to 2. Encoder LVUP-LVDN relative adjustment. If not, follow the procedure as shown below.
4. Loosen the fixing screw of horizontal adjustment.
5. Rotate the adjustment screw so that the reference height of disc rack (R) becomes the same height as the vertical position indicator. Note that always finish the adjustment after rotating CW direction.
6. Tighen the fixing screw and apply the lock-tight.
7. Repeat step 1 to 3 and make sure the height is correct.

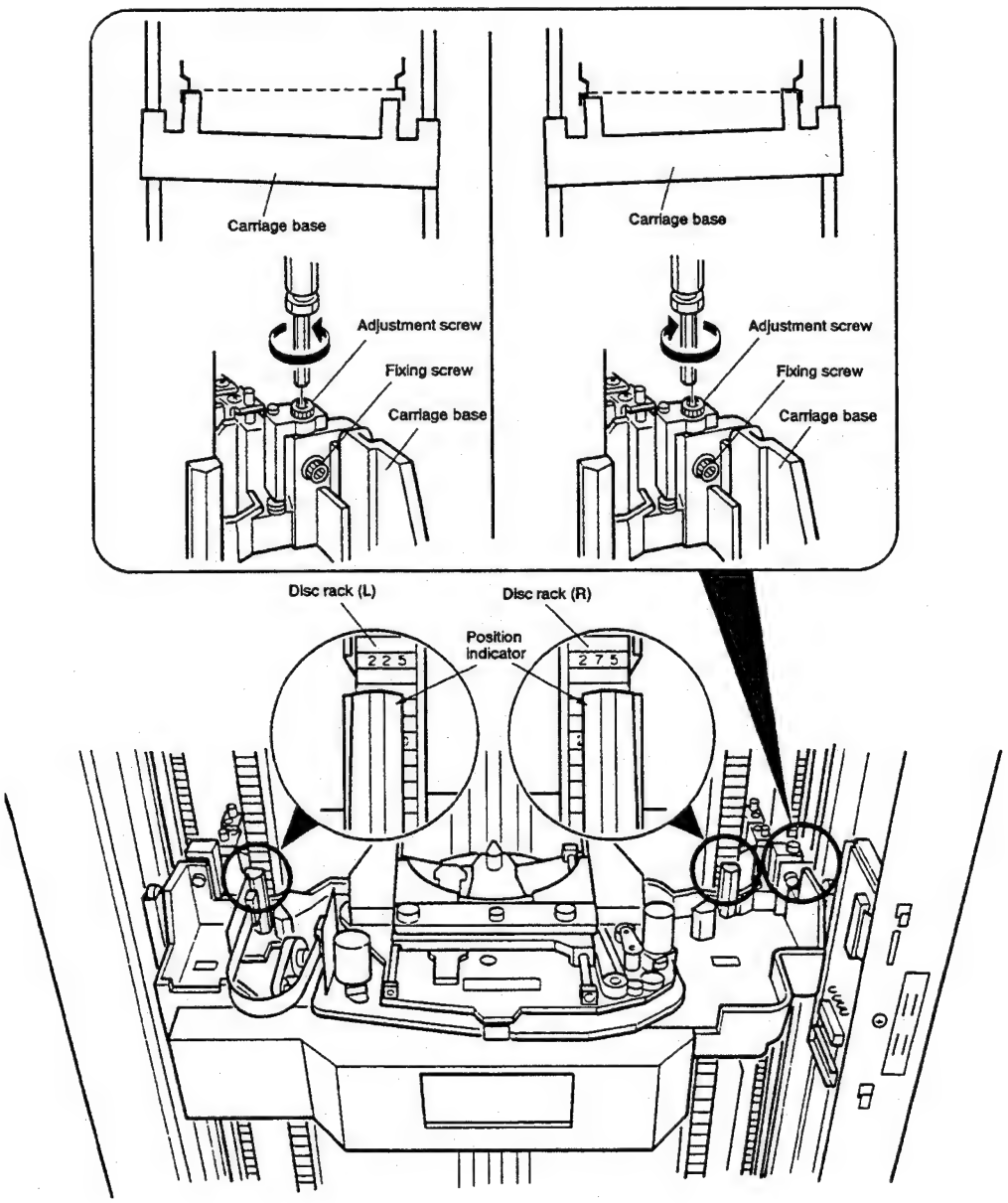


Fig.2 Horizontal adjustment of disc carriage base

3.2 Encoder LVUP-LVDN Relative Adjustment

1. Loosen the fixing screw.
2. Make sure that the vertical position of the carriage base is reference position (address 225).
3. Lower the carriage base by rotating the vertical motor CCW by finger until LEFT UP LED (green) is turned off. If the LED is already turned off, move the carriage base to upper position so that the LED is turned on. Then, lower it until the LED is turned off.
4. Rotate adjustment screw CCW slowly until LEFT DN LED (red) is turned on. If it is already turned on, skip this step.
5. Rotate the adjustment screw CW slowly until LEFT DN LED is turned off.
6. Rotate the adjustment screw CW by 270 degrees.
7. Tighten the fixing screw and apply the lock-tight.

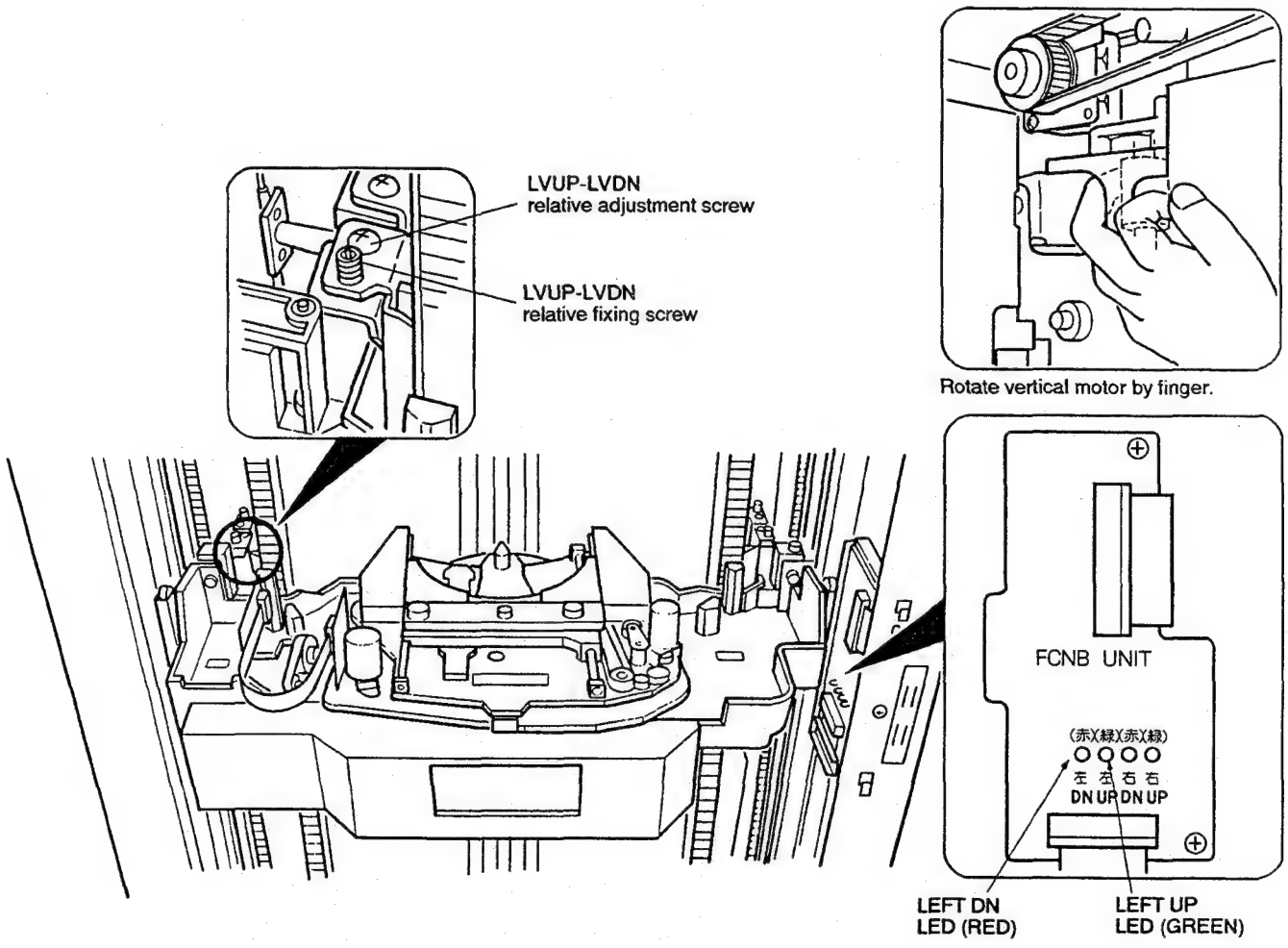


Fig.3 Encoder LVUP-LVDN relative adjustment

3.3 Height Adjustment of Encoder assy (L)

1. Make sure that the vertical position of the carriage base is reference position (address 225).
2. Move the carriage base by rotating the vertical motor by finger until LEFT DN LED (red) is turned on. If it is already turned on, skip this step.
3. Lower the carriage base by rotating the vertical motor CCW slowly by finger until LEFT DN LED (red) is turned off.
4. Take a look at the reference height of disc rack (L) and make sure that height difference is within ± 0.5mm. If OK, proceed to 4. Encoder RVUP-RVDN relative adjustment. If not, follow the procedure as shown below.
5. Loosen the fixing screw of encoder assy (L).
6. Rotate the vertical motor by finger so that the vertical position indicator of carriage base is the same height as the reference height of disc rack (L).
7. Rotate the adjustment screw of encoder assy (L) CCW slowly until LEFT DN LED is turned on. If the LED is already turned on, skip this step.
8. Rotate the adjustment screw CW slowly until LEFT DN LED is turned off.
9. Tighten the fixing screw and apply the lock-tight.

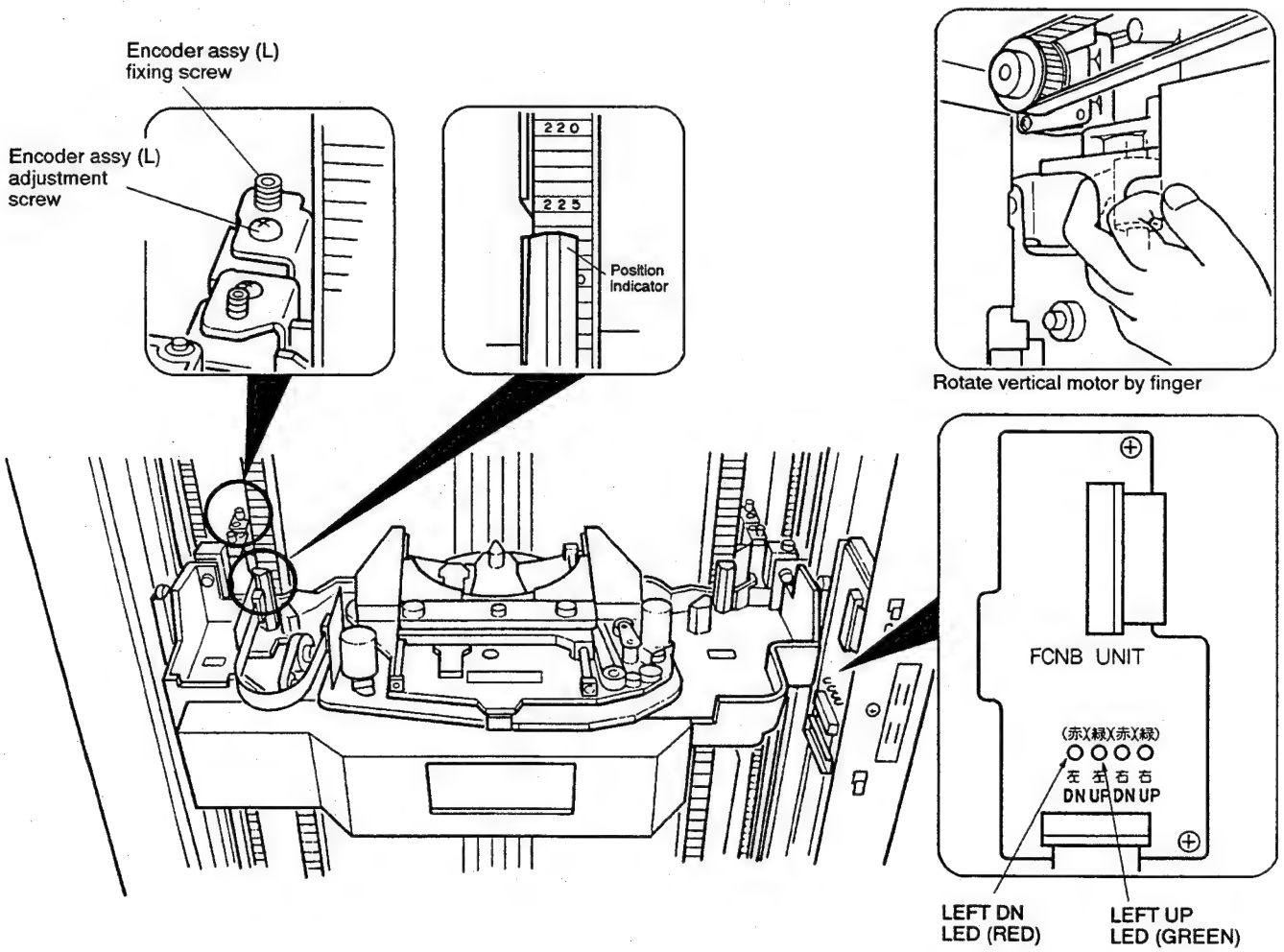


Fig.4 Height adjustment of encoder assy (L)

3.4 Encoder RVUP-RVDN Relative Adjustment

1. Loosen the fixing screw.
2. Make sure that the vertical position of the carriage base is reference position (address 225).
3. Lower the carriage base by rotating the vertical motor CCW by finger until RIGHT UP LED (green) is turned off. If the LED is already turned off, move the carriage base to upper position so that the LED is turned on. Then, lower it until the LED is turned off.
4. Rotate adjustment screw CCW slowly until LEFT DN LED (red) is turned on. If it is already turned on, skip this step.
5. Rotate the adjustment screw CW slowly until LEFT DN LED is turned off.
6. Rotate the adjustemnt screw CW by 270 degrees.
7. Tighten the fixing screw and apply the lock-tight.

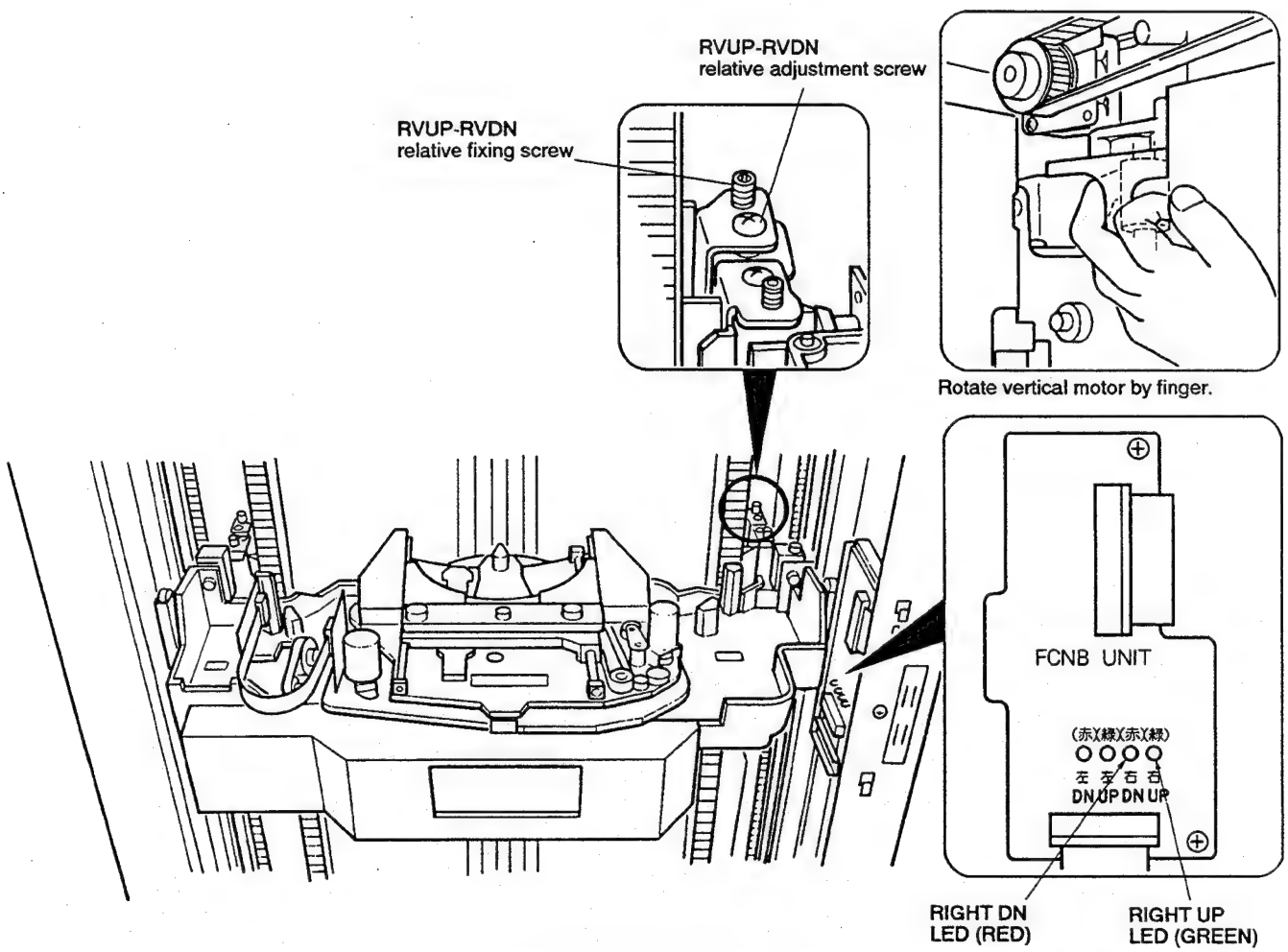


Fig.5 Encoder RVUP-RVDN relative adjustment

3.5 Encoder Assy (R) Height Adjustment

1. Make sure that the vertical position of the carriage base is reference position (address 225).
2. Move the carriage base by rotating the vertical motor by finger until RIGHT DN LED (red) is turned on. If it is already turned on, skip this step.
3. Lower the carriage base by rotating the vertical motor CCW slowly by finger until RIGHT DN LED (red) is turned off.
4. Take a look at the reference height of disc rack (R) and make sure that height defference is within ± 0.5mm. If OK, proceed to 6. D guide height adjustment. If not, follow the procedure as shown below.
5. Loosen the fixing screw of encoder assy (R).
6. Rotate the vertical motor by finger so that the vertical position indicator of carriage base is the same height as the reference height of disc rack (R).
7. Rotate the adjustment screw of encoder assy (R) CCW slowly until RIGHT DN LED is turned on. If the LED is already turned on, skip this step.
8. Rotate the adjustment screw CW slowly until RIGHT DN LED is turned off.
9. Tighten the fixing screw and apply the lock-tight.

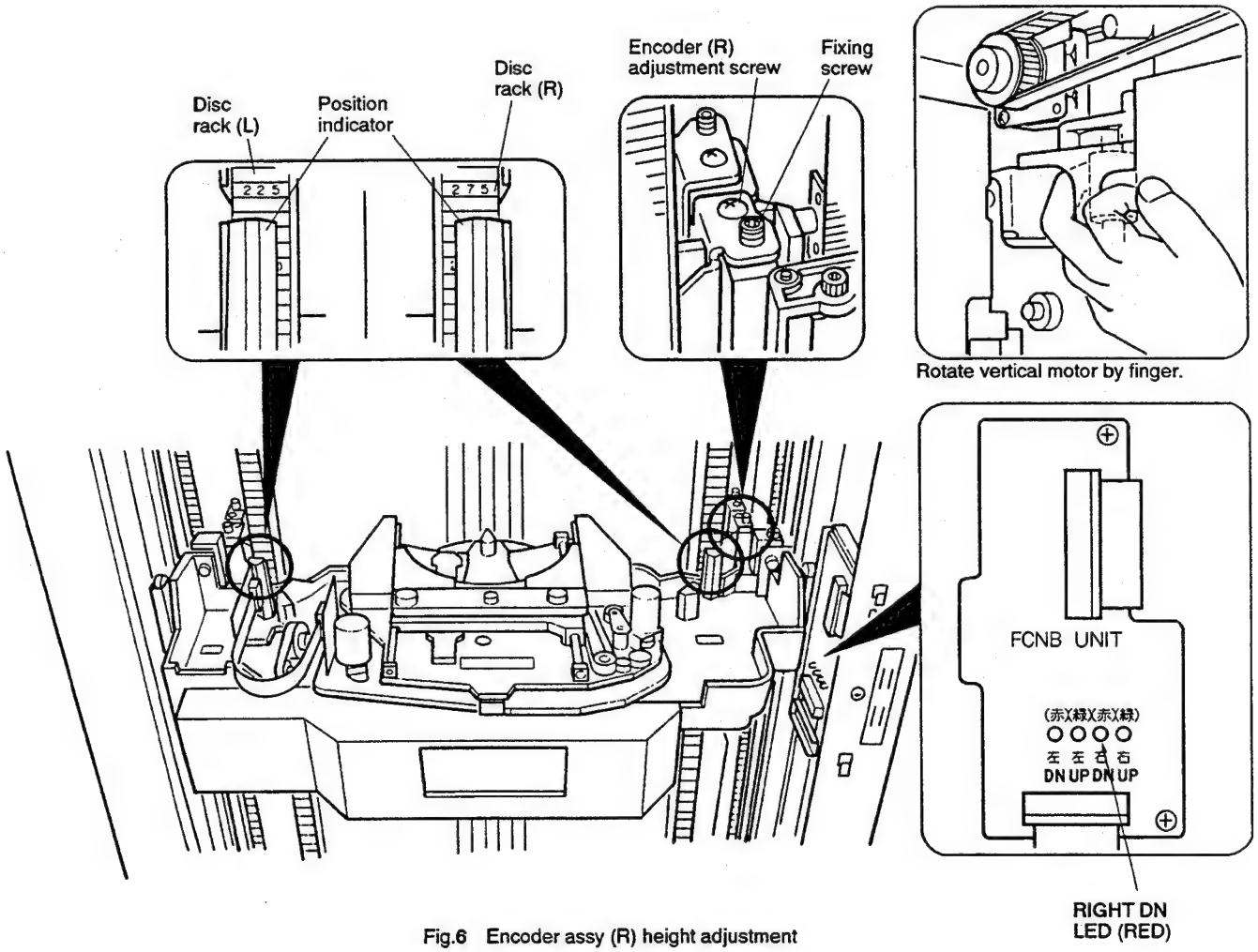


Fig.6 Encoder assy (R) height adjustment

3.6 D Guide (L) Height Adjustment

1. Move the carriage base to vertical address 225. If it is already located at 225, move to other address then back to 225.
2. Move the swing to left position. In manual mode, select sub model then push S1 key. When step mode is selected, select sub model then push S1 key. Difference between manual and step is that you can stop the mechanism at any position in manual mode. Swing motor also can be rotated by finger.
3. Move the D guide in front of disc rack (L) as shown in the diagram.
4. Make sure that the front section of D guide is located at the center of disc rack groove. Make sure that the difference is within ± 0.5mm.
   If OK, proceed to 3.7 D guide (R) height Adjustment. If not, follow the procedure as shown below.
5. Rotate the adjustment screw so that the height is correct and apply the lock-tight.
6. Push S2 key to return to the center position.

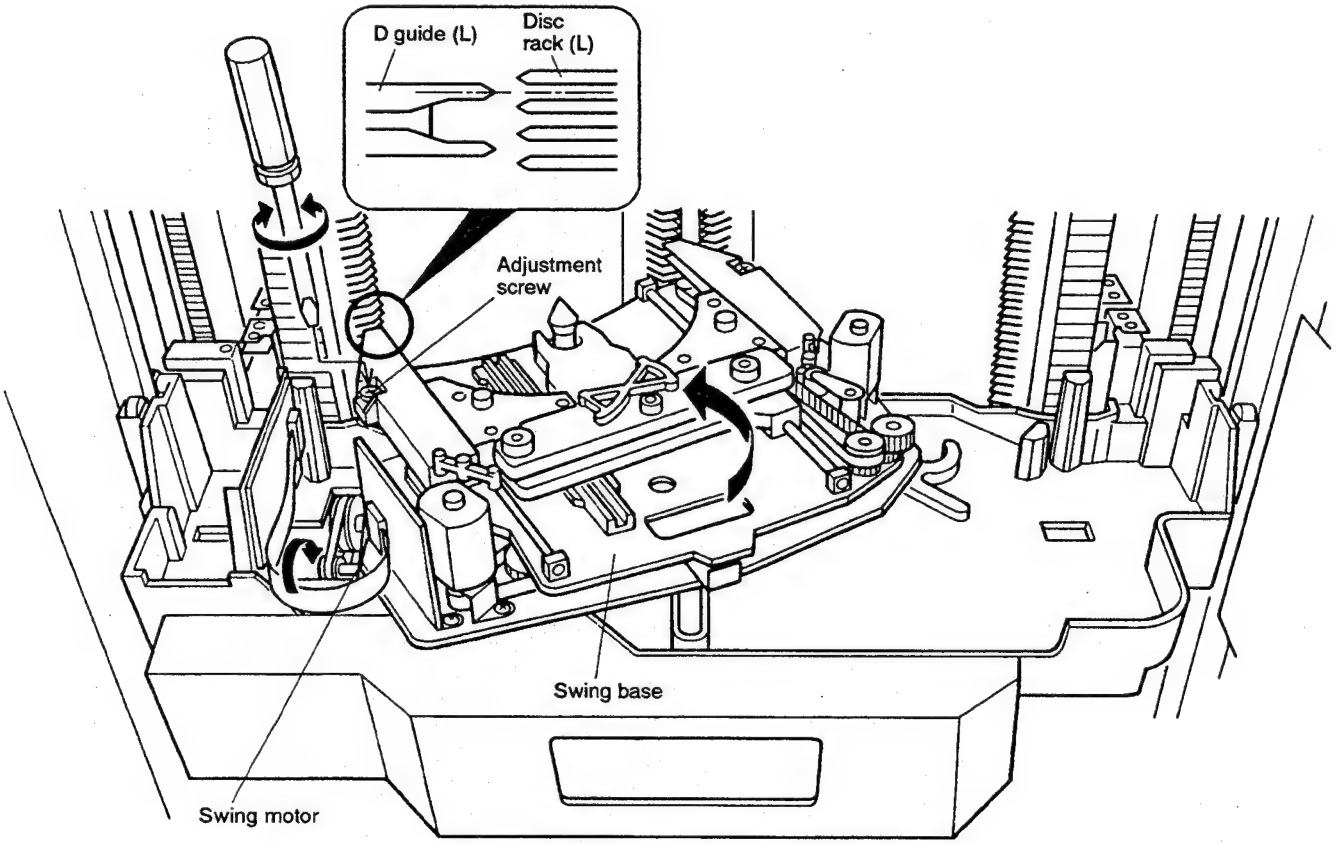


Fig.7 D guide (L) height adjustment

3.7 D Guide (R) Height Adjustment

1. Move the carriage base to vertical address 275. If it is already located at 275, move to other address then back to 275.
2. Move the swing to right position.
3. Move the D guide in front of disc rack (R) as shown in the diagram.
4. Make sure that the front section of D guide is located at the center of disc rack groove. Make sure that the difference is within ± 0.5mm. If OK, proceed to 8. Height check. If not, follow the procedure as shown below.
5. Rotate the adjustment screw so that the height is correct and apply the lock-tight.
6. Push S2 key to return to the center position.

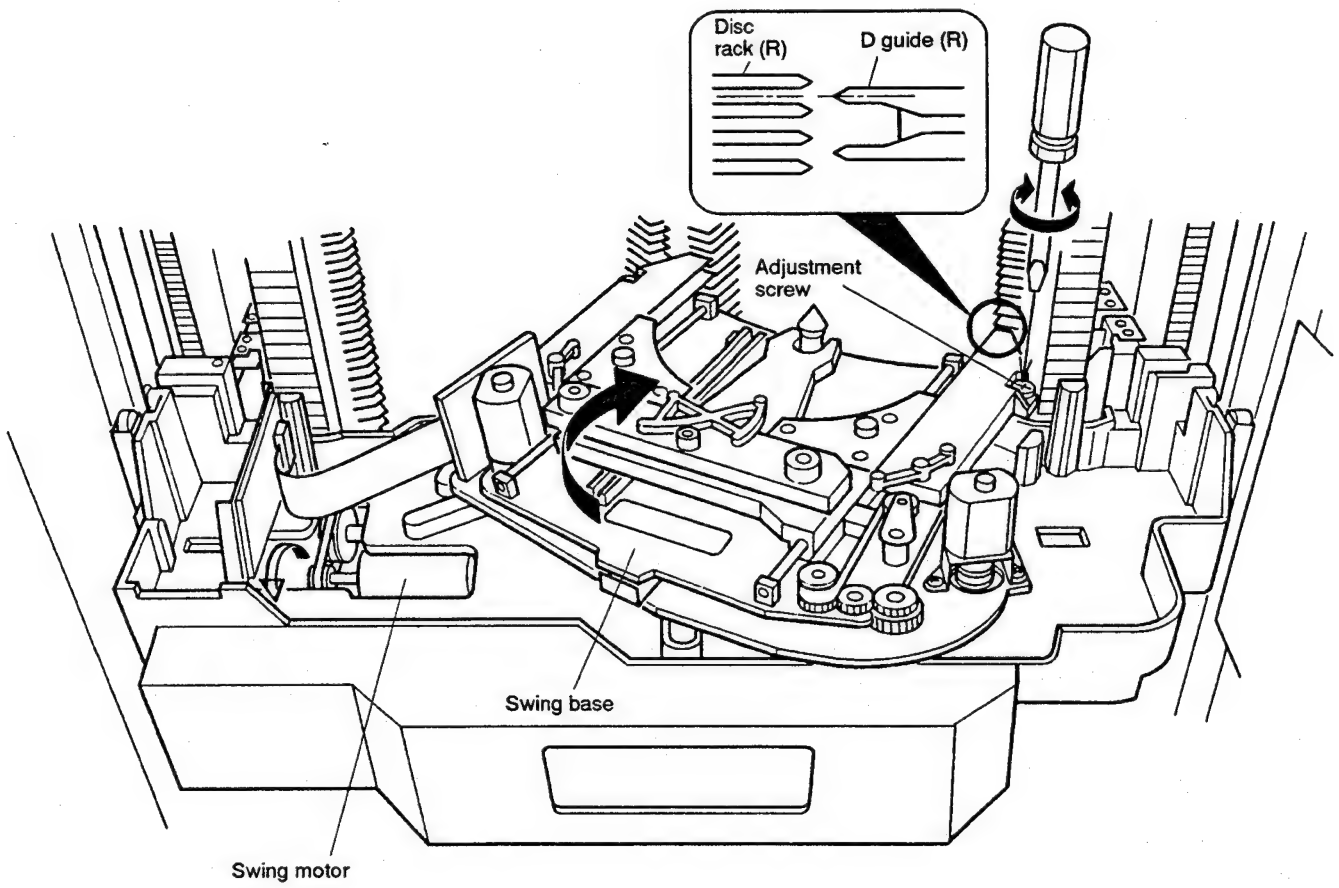


Fig.8 D guide (R) height adjustment

3.8 Height Check

1. Insert the disc stocker in top position.
2. Make sure that a disc is smoothly removed and returned at vertical address 25 and 75. Also make sure the movement at 4 drive positions.

7.2 CD-ROM PLAYER UNIT

• Adjustment and Check Items

Perform the adjustment of this model in the order as shown below.

1. VCO free-run frequency adjustment
2. Focus offset adjustment
3. Tracking error balance adjustment
4. Pickup radial/tangential tilt adjustment
5. RF level verification
6. Focus servo loop gain adjustment
7. Tracking servo loop gain adjustment
8. VCO free-run frequency re-adjustment

• Measuring Equipment

1. Dual trace oscilloscope
2. Laser power meter
3. Test disc (YEDS - 7)
4. Tracking error balance adjustment filter
5. Loop gain adjustment filter
6. Signal generator
7. Frequency counter (measurable over 10MHz)
8. Ball point hexagonal wrench (GGK1002)
9. Other general tools

• Adjustment Points and Their Names

VR1 : Tracking error balance (TRKG - B)
VR2 : Tracking servo loop gain (TRKG - G)
VR3 : Focus offset (FOCUS OFFSET)
VR4 : Focus servo loop gain (FOCUS GAIN)
VR5 : Laser power (HEAD UNIT)
VR6 : X4 VCO adjustment (X4 VCO ADJ)
VR7 : PLL offset (PLL OFFSET)
L2 : VCO adjustment (VCO ADJ)

1. Function Table of the Remote Controller (RU-V101) for Service

• Test mode

Shows the function table of the remote controller (RU-V101) for service as follows. When operating the CD-ROM changer directly, it is possible to operate as shown below by connecting the wired-remote control to the CD-ROM with the interface.

• Schematic Diagram of the Conversion Jig for Remote Control Operation

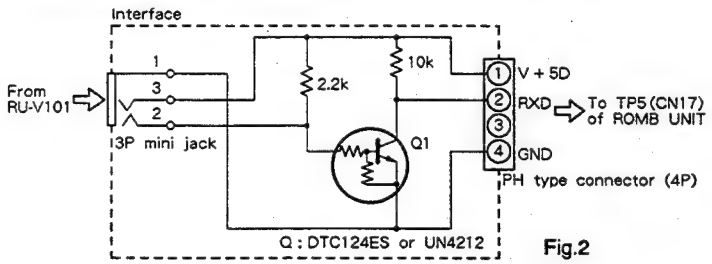


Fig.2

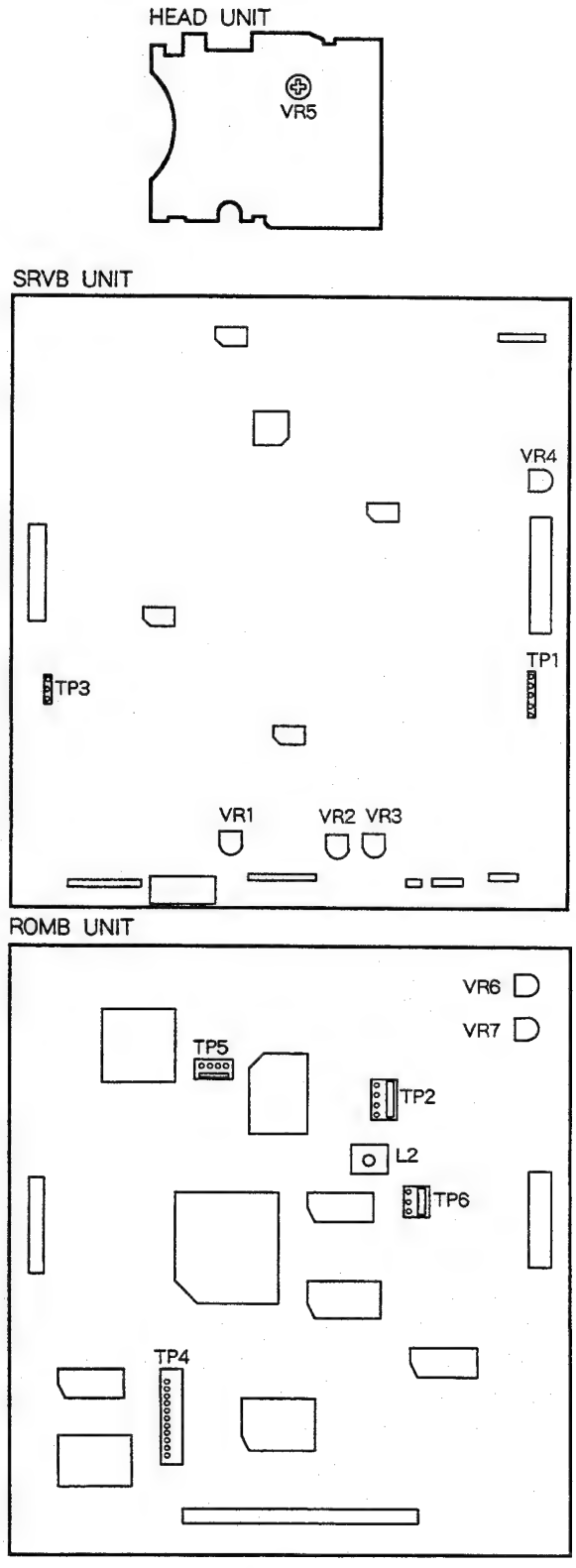


Fig.1 Adjustment point

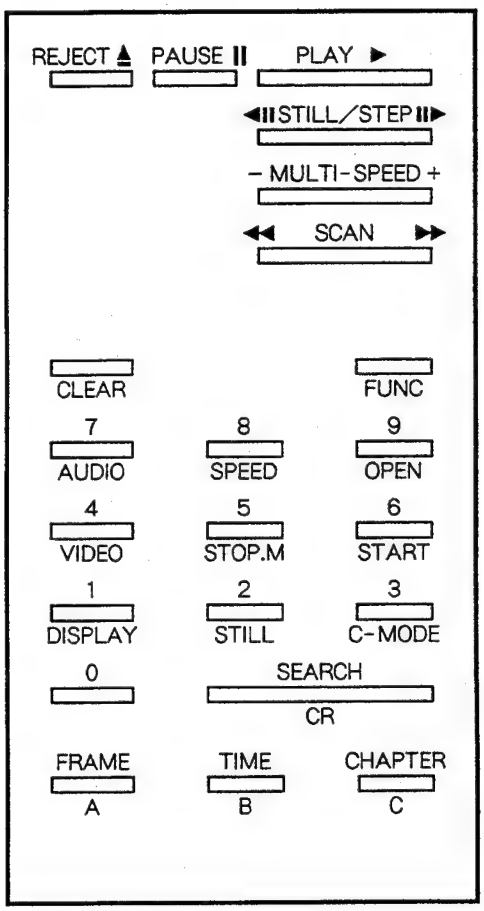


Fig.3 RU-V101

REJECT		: Spindle stop
PAUSE		: Pause
PLAY		: Play
STILL/STEP	▶‖	: Test command
STILL/STEP	‖◀	: Test command
MULTI-SPEED+		: Test command
MULTI-SPEED −		: Test command
SCAN	▶▶	: Scan FWD
SCAN	◀◀	: Scan REV
CLEAR		: Clear
FRAME		: Frame set
TIME		: Time set
CHAPTER		: Track set
SEARCH		: Search
10key		: Numerical input
DISPLAY	(FUNC+1)	: No entry
STILL	(FUNC+2)	: No entry
C-MODE	(FUNC+3)	: No entry
VIDEO	(FUNC+4)	: No entry
STOP.M	(FUNC+5)	: Stop marker
START	(FUNC+6)	: Start
AUDIO	(FUNC+7)	: No entry
SPEED	(FUNC+8)	: No entry
OPEN	(FUNC+9)	: Magazine eject

- **Test command**

Key operation	Command	Description
[0]+[TIME]	{0TM}	All servo OFF
[1]+[TIME]	{1TM}	Laser diode (LD) ON
[2]+[TIME]	{2TM}	Focus ON
[3]+[TIME]	{3TM}	Spindle ON (CLV-A)
[4]+[TIME]	{4TM}	Tracking ON/OFF
[5]+[TIME]	{5TM}	Slider ON/OFF
[6]+[TIME]	{6TM}	Lens UP/DOWN (Twice)
[7]+[TIME]	{7TM}	Spindle UP/DOWN (30 sec.)
[8]+[TIME]	{8TM}	Spindle rotation frequency : Normal speed
[9]+[TIME]	{9TM}	Spindle rotation frequency : Fourfold speed
[STILL/STEP>>]	{SF}	1 Track jump : FWD
[STILL/STEP<<]	{SR}	1 Track jump : REV
[*]+[*]+[*]+[MULTI-SPEED+]	{ * * * MF}	* * * Track jump : FWD
[*]+[*]+[*]+[MULTI-SPEED −]	{ * * * MR}	* * * Track jump : REV

2. Adjustment

Note : If the specified values cannot be obtained or no adjustment is possible by performing the verifications or adjustments described in adjustment items 1 - 5, the pickup block may be defective.

1. VCO Free-run Frequency Adjustment

● Objective ● Symptom when out of adjustment	To optimize the VCO free-run frequency. No play.		
● Measurement instrument connections	Connect the frequency counter to TP2, pin 2 (PLCK) and connect the voltage meter to TP2, pin 1 (PSER) [Settings]	● Player state ● Adjustment location ● Disc	Stopped (just the power switch ON) VR7 (PLL OFFSET) L2 (VCO. ADJ) None needed

[Procedure]

1. Adjust VR7 so that the voltage at TP2, pin 1 is 0V ± 0.1V.
2. Verify the VCO frequency at TP2, pin 2 is 4.32MHz ± 0.01MHz.
3. If it has shifted, adjust L2 to correct frequency.

2. Focus Offset Adjustment

● Objective ● Symptom when out of adjustment	Verify the DC offset for the focus error amp. The model does not focus in and the RF signal is dirty.		
● Measurement instrument connections	Connect the oscilloscope to TP1, pin 2 (FCSER) [Settings] 5mV/division 10ms/division DC mode	● Player state ● Adjustment location ● Disc	Stopped (just the power switch ON) VR3 (FOCUS OFFSET) None needed

[Procedure]

Adjust VR3 so that the voltage at TP1, pin 2 is 0V ± 50mV.

3. Tracking Error Balance Adjustment

● Objective ● Symptom when out of adjustment	To verify that there is no variation in the sensitivity of the tracking photo diode. Play does not start or track search is impossible.		
● Measurement instrument connections	Connect the oscilloscope to TP1, pin 4 (TRKER). This connection may be via a low pass filter. (See Fig.4) [Settings] 50mV/division 5ms/division DC mode	● Player state ● Adjustment location ● Disc	Focus and spindle servos closed and tracking servo open VR1 (TRKG-B) YEDS-7

[Procedure]

1. Move the pickup to halfway across the disc (R=35 mm).
2. Close the focus servo and the spindle servo.
3. Line up the bright line (ground) at the center of the oscilloscope screen and put the oscilloscope into DC mode.
4. Adjust VR1 so that the voltage at TP1, pin 3 is 0V ± 50mV.

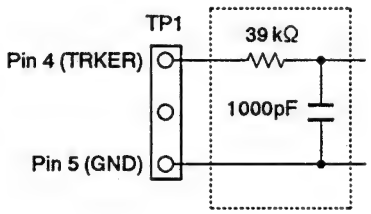


Fig.4 TRK LPF Filter

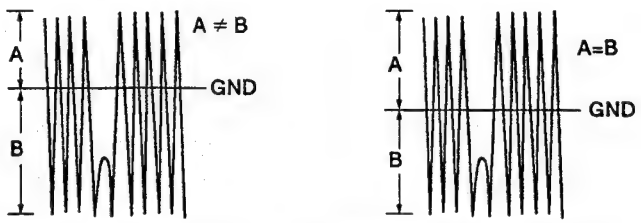


Fig.5 DC Component Waveform

4. Pickup Radial/Tangential Adjustment

● Objective	To adjust the angle of the pickup relative to the disc so that the laser beams are shone straight down into the disc for the best read out of the RF signals.		
● Symptom when out of adjustment	Sound broken; some discs can be played but not others.		
● Measurement instrument connections	Connect the oscilloscope to TP3, pin 1 (RF). [Settings] 20mV/division 200ns/division AC mode	● Player state ● Adjustment location ● Disc	Play Pickup radial tilt adjustment screw and tangential tilt adjustment screw YEDS-7

[Procedure]

1. Move the pickup to halfway across the disc (R=35mm). Close the respective servos and put the player into play mode.
2. First, adjust the radial tilt adjustment screw with the hexagonal wrench (GGK1002) so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly (Fig. 8)
3. Next, adjust the tangential tilt adjustment screw with the hexagonal wrench (GGK1002) so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly (Fig.8)
   ※ The ball-point type hexagonal wrench is used because the disc will get in the way if a normal hexagonal wrench is used.
4. Adjus the radial tilt adjustment screw and the tangential tilt adjustment screw again so that the eye pattern can be seen the most clearly. As necessary, adjust the two screws alternately so that the eye pattern can be seen the most clearly.
5. When the adjustment is completed, lock the radial and tangential adjustment screw.

Note : Radial and tangential mean the directions relative to the disc shown in Fig.6.

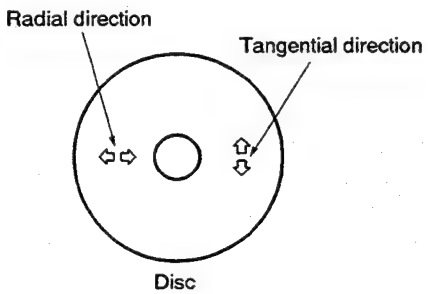


Fig.6

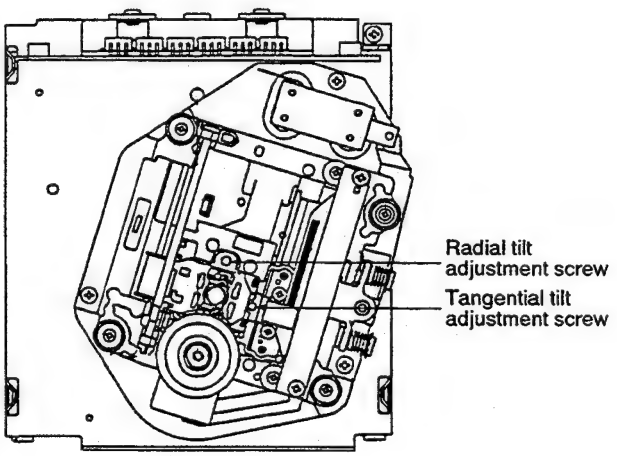


Fig. 7

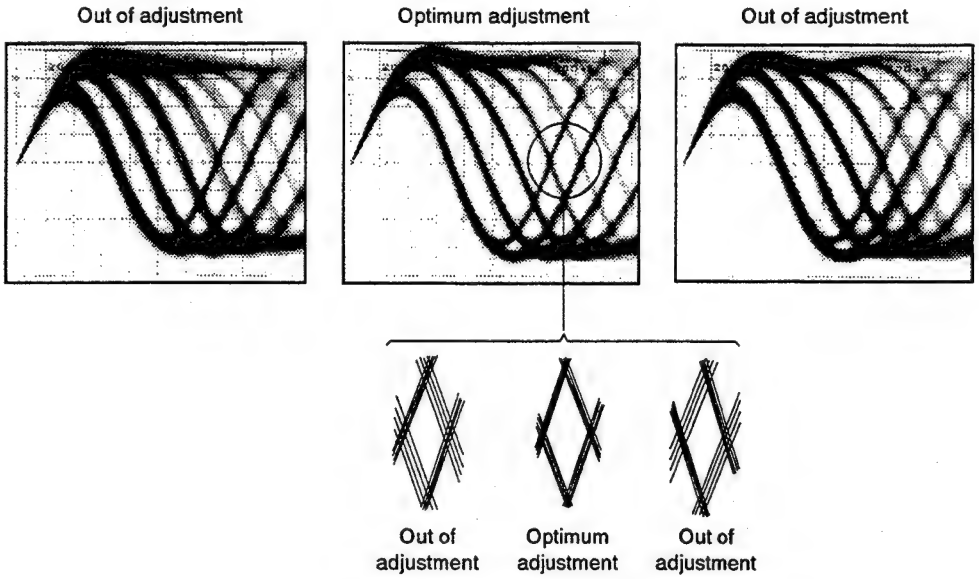


Fig.8 Eye pattern

5. RF Level Verification

● Objective	To verify the playback RF signal amplitude		
● Symptom when out of adjustment	No play or no search		
● Measurement instrument connections	Connect the oscilloscope to TP3, pin 1 (RF). [Settings] 50mV/division 10ms/division AC mode	● Player state ● Adjustment location ● Disc	Play VR5 YEDS-7

[Procedure]

1. Move the pickup to halfway across the disc (R=35mm).
2. Close the respective servos and put the player into play mode.
3. Verify the RF signal amplitude is 1.7V p-p ± 0.6V.
4. If it was over 2.1Vp-p, adjust VR5 so that the voltage is 2.0Vp-p ± 0.1V.

6. Focus Servo Loop Gain Adjustment

● Objective	To optimize the focus servo loop gain.		
● Symptom when out of adjustment	Playback does not start or focus actuator noisy.		
● Measurement instrument connections	See fig.9 [Settings] CH1 : 20mV/division CH2 : 5mV/division X-Y mode	● Player state ● Adjustment location ● Disc	Play VR4 (FOCUS GAIN) YEDS-7

[Procedure]

1. Set the AF generator output to 1kHz and 1Vp-p.
2. Move the pickup to halfway across the disc (R=35mm).
3. Close the respective servos and put the player into play mode.
4. Adjust VR4 so that the Lissajous waveform is symmetrical (phase difference is 90° ± 10°) about the X axis and the Y axis.

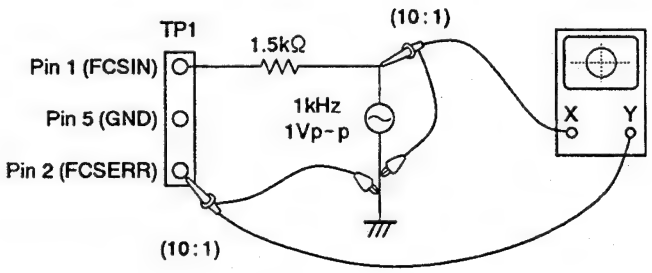
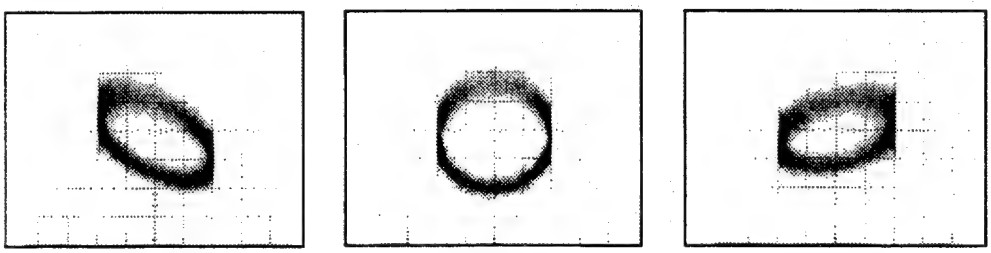


Fig.9 Connection

Focus Gain Adjustment



Higher gain | Optimum gain | Lower gain

Fig.10 Lissajous Waveform

7. Tracking Servo Loop Gain Adjustment

● Objective	To optimize the tracking servo loop gain.		
● Symptom when out of adjustment	Playback does not start, during searches the actuator is noisy, or tracks are skipped.		
● Measurement instrument connections	See fig.11 [Settings] CH1 : 50mV/division CH2 : 20mV/division X-Y mode	● Player state ● Adjustment location ● Disc	Play VR2 (TRKG-G) YEDS-7

[Procedure]

1. Set the AF generator output to 1kHz and 1Vp-p.
2. Move the pickup to halfway across the disc (R=35mm).
3. Close the respective servos and put the player into play mode.
4. Adjust VR2 so that the Lissajous waveform is symmetrical (phase difference is 90° ± 10°) about the X axis and the Y axis.

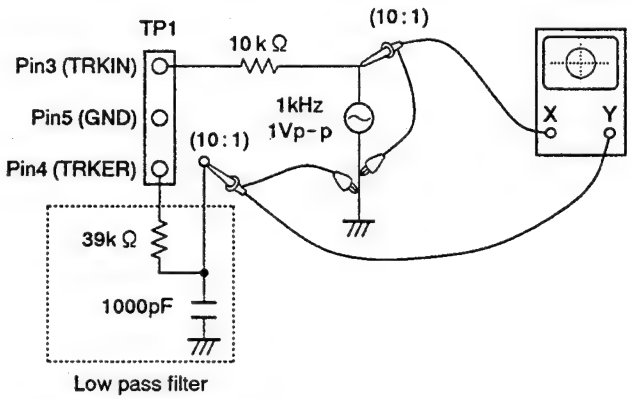
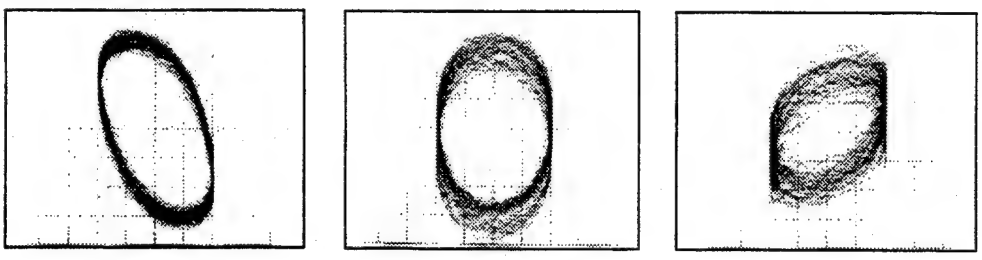


Fig.11 Connection

Tracking Gain Adjustment



Higher gain | Optimum gain | Lower gain

Fig.12 Lissajous Waveform

8. VCO Free-run Frequency Re-adjustment

● Objective	To optimize the VCO Free-run frequency.		
● Symptom when out of adjustment	No play. Search does not converge.		
● Measurement instrument connections	Connect the voltage meter to TP2, pin 1 (PSER). [Settings]	● Player state ● Adjustment location ● Disc	Play L2 (VCO. ADJ) VR6 (X4 VCO ADJ) YEDS-7

[Procedure]

1. Perform inner/outer periphery search in normal speed mode and adjust L2 so that the amplitude of the DC component of the waveform at TP2, pin1 moves evenly in the upward and downward directions.
2. Perform inner/outer periphery search in quadruple-speed play mode and adjust VR6 so that the amplitude of the DC component of the waveform at TP2, pin1 moves evenly in the upward and downward directions.
   (The inner/outer periphery search is activated by pressing SEARCH button after pressing the TIME button on remote controller.)

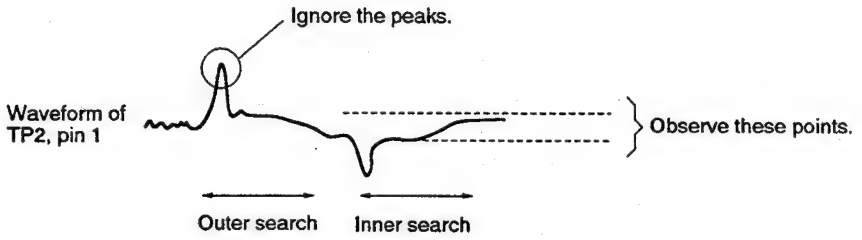


Fig.13

8. PARTS LIST FOR EXPLODED VIEWS AND PACKING

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by " ◉ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

8.1 EXTERIOR SECTION (1)

Mark	No.	Description	Part No.
NSP	1	Spacer	RLA1285
	2	Cushion B	DEC1813
	3	Side plate L (ROM)	DNA1163
	4	Cushion A	DEC1812
	5	ROM disc stocker assy	DXX2246
	6	PL label	DRW1586
	7	LED packing	DEC1819
	8	Indicator bracket	RNE1667
	9	LEDB unit	RWZ3073
	10	ROM clamper full assy (upper section)	DXX2245
	11	TUV label	ORW1091
	12	ROM clamper full assy (lower section)	DXX2214
	13	Caution label	ORW1129
	14	65 label	ORW1069
	15	Door packing L	DEC1810
	16	Door packing B	DEC1811
	17	Damp sheet	REB1235
	18	Door packing T	DEC1815
NSP	19	CD-ROM player unit	DWY1037
	20	Top plate (ROM)	DNA1162
	21	Fall protector L (ROM)	DNE1267
	22	Fall protector R (ROM)	DNE1268
	23	Handle holder L (ROM)	DNE1265
	24	Handle holder R (ROM)	DNE1266
	25	Cushion	DEB1016
NSP	26	Handle pipe	RLA1240
	27	Rear plate (upper)	RNE1689
NSP	28	ROM cover	DNE1274
NSP	29	ROM rack	DNE1264
	30	Rear plate (center)(ROM)	DNE1262
	31	Rear plate (lower)	RNE1691
	32	Side plate R (ROM)	DNA1164
	33	Caution label (V selector)	DRW1628
	34	Screw	DBA1083
	35	Screw	BBZ30P060FMC
	36	Screw	BBT30P080FZK
	37	Screw	AMZ40P060FNI
	38	Screw	ABZ40P100FMC
	39	Screw	IBZ30P120FCU
	40	Caution label	ORW1129
	41	Protection tube	RDM1005
	42	Caution label	PRW1018
NSP	43	History label	VRW-348
	44	Front door full assy	DXX2213
NSP	45	Gasket	DEB1307

8.2 EXTERIOR SECTION (2)

Mark	No.	Description	Part No.
NSP	1	VD pulley A	RNK1933
	2	Bearing	DXB1027
	3	Worm wheel assy	RLA1224
	4	Worm assy	RLA1199
	5	Bearing	DXB1026
	6	Bearing clamper	DLA1418
	7	GB spring	DBH1148
NSP	8	Gear box stay	RNE1693
NSP	9	Gear box	DNS1091
	10	Flange	DNS1023
NSP	11	VD motor stay A	RNE1716
	12	Cup ring	DNK1043
NSP	13	VD motor stay B	RNE1631
	14	VD motor assy (for service)	RXX1613
	15	VD motor	DXM1025
	16	VME plate	DNH1268
NSP	17	ENCB unit	RWZ3070
	18	Encoder disc assy	DXB1160
	19	Motor cover	RNK2068
NSP	20	Tape	Z11-072
	21	Flexible cord guide	RNE1637
	22	Flexible cord holder	RNE1629
NSP	23	Mechanism sheet (cloth)	VEX1024
NSP	24	CMEC stay L	RNE1664
NSP	25	CMEC stay R	RNE1665
NSP	26	Wire saddle (8S)	DEC1760
	27	SIDEB unit	DWX1504
	28	Mechanism control ROM IC (IC514)	DYW1372
	29	Flexible cord (ROM)	DDD1086
	30	ROM sheet	DEC1839
	31	Connector assy	DKP2928
NSP	32	Piercing hold	DEC1230
NSP	33	Spacer	DEC1316
⚠	34	Line filter with AC inlet	DTF1080
NSP	35	Wire clip (H)	VEC1181
NSP	36	Locking wire saddle	DEC1717
⚠	37	Power transformer	DTT1110
⚠	38	Power transformer	DTT1109
	39	Power transformer stay	RNE1678
NSP	40	PSSB stay (upper)	RNE1674
NSP	41	PSSB stay (lower)	RNE1675
	42	PWRB unit	DWX1526
	43	Connector assy	DKP2929
⚠	44	Fuse (FU111, FU112 : 630mA)	VEK1011

8.3 EXTERIOR SECTION (3)

Mark	No.	Description	Part No.
⚠	45	Fuse (FU127, FU128 : 630mA)	REK-098
⚠	46	Fuse (FU119, FU121, FU126 : 1.6A)	REK-102
⚠	47	Fuse (FU113 : 8A)	VEK1028
NSP	48	CIOB stay (upper)	RNE1706
NSP	49	CIOB stay (lower)	RNE1707
	50	CMCB unit	DWX1500
⚠	51	Fuse (FU122, FU125 : 500mA)	DEK1027
	52	• • • • •	
	53	• • • • •	
	54	ID switch holder	DEC1805
	55	JCKB unit	DWX1503
	56	Screw	BBZ30P080FNI
NSP	57	ROM panel	DNA1175
	58	Screw	PMZ30P100FNI
	59	Screw	BBZ40P060FNI
NSP	60	Flat cable clamp	DEC1828
	61	Connector assy	DKP2926
	62	Rotary switch	DSX1043
	63	IDSB unit	DWX1502
	64	Cord clamper	RNH-184
	65	Nut	NB26FMC
	66	Screw	SMH30P100FBT
	67	Screw	AMZ30P160FMC
	68	Screw	AMZ30P060FMC
	69	Screw	AMZ20P060FMC
	70	Screw	BBZ30P060FMC
	71	Screw	BMZ40P060FMC
	72	Screw	PMH30P080FMC
	73	Screw	PMZ26P080FMC
	74	Screw	ZMD26H030FBT
	75	Connector assy 2P	RKP1585
NSP	76	PCB holder	PNW2100
	77	Connector assy 2P	RKP1584
	78	Edge guard B	REC1226
⚠	79	Fuse (FU129 : 6.3A)	REK-108
⚠	80	Fuse (FU110, FU118, FU120 : 1.5A)	VEK1017
⚠	81	Fuse (FU123, FU125 : 500mA)	REK-097
	82	Connector assy	DKP2919
	83	PSSWB unit	DWX1527
	84	Screw	BBZ26P060FNI
	85	Protector	DEB1284
NSP	86	Ferrite core 50P	DTH1170
NSP	87	SCSI guard	DEB1309

Mark	No.	Description	Part No.
	1	Lever switch	DSK1003
NSP	2	Mechanism sheet (cloth)	VEX1024
	3	Corner flame A	RNE1657
	4	Door hinge assy	RXA1595
	5	Door hinge assy B	RXA1619
NSP	6	Edge guard L	REC1206
	7	Weight guide	RNK1937
NSP	8	Weight cover	RNE1622
NSP	9	Weight	RNE1615
NSP	10	ROM plate L assy	DXA1697
	11	Rack rail	RNK1981
	12	Wire assy	RXA1570
	13	Weight roller	RNK2083
	14	Roller spring	RBH1374
	15	Roller support	RNE1623
	16	Roller pin	RLA1273
	17	W spring	RBH1344
	18	Weight holder L assy	RXA1567
NSP	19	EQ stay assy	RXA1569
NSP	20	Hook lever L assy	RXA1591
NSP	21	Hook lever R assy	RXA1592
	22	Rope pulley	DNK1841
	23	Rope plate assy	DXB1258
NSP	24	Side rail assy	RXA1587
	25	Wire support assy	RXA1572
	26	Corner flame B	DNH2000
NSP	27	Wire saddle (8S)	DEC1760
NSP	28	SR plate L	RNE1686
NSP	29	SR plate R	RNE1687
NSP	30	Upper stay	RNE1640
	31	Tap plate	RNE1745
NSP	32	SSAB unit	RWZ3077
NSP	33	Upper chassis	RNE1644
	34	Gear box spring	RBH1370
NSP	35	Edge saddle	DEC1498
	36	Lamp	DEL1019
NSP	37	LAMP unit	RWZ3075
NSP	38	WL spacer	ONK1047
	39	SSDC unit	RWZ3074
NSP	40	VD pulley A	RNK1933
	41	Bearing	DXB1157
NSP	42	VD stay L	RNE1641
NSP	43	VD stay R	RNE1642
	44	Timing belt S	REB1230
NSP	45	VD pulley B	RNK1934
NSP	46	VD shaft	RLA1235
	47	Timing belt L	REB1229
NSP	48	Carriage base assy	RXA1551
	49	Flexible cord A	RDD1293
	50	VD bush	DNK1895

Mark	No.	Description	Part No.
	51	VD pulley 2	DNK1809
	52	VD shaft 3	DLA1409
NSP	53	Limit stay L	RNE1659
	54	Support plate	RNE1768
	55	VD bolt 3 assy	DXB1254
	56	VD holder assy	RXA1585
	57	VD spring 4	DBH1139
	58	Tension nut	DLA1410
	59	VD pulley 2 assy	DXX1525
	60	Limit stay R assy	RXA1593
	61	Slide switch	VSK1003
	62	Limit SW spring	RBH1346
	63	Limit SW holder	RNE1649
NSP	64	Gasket	DEB1307
NSP	65	Under chassis assy	RXA1584
	66	Spacer A	REB1258
NSP	67	Harness guide	RNE1712
	68	Caster (S)	RXA1601
	69	Caster	RXA1442
	70	Hook plate	RNE1796
NSP	71	Under angle	RNE1704
NSP	72	PCB cover	RNE1705
	73	Bottom plate	RNE1636
	74	Edge guard S	REC1242
	75	Door hook	RNE1663
	76	Flexible caution label	DRW1581
NSP	77	P power supply stay	DNE1271
	78	Magnet catch	REX1002
	79	Door guide	DNK3065
NSP	80	Edge guard B	REC1226
NSP	81	Function board stay	RNE1680
	82	KEYB unit	RWZ3072
	83	Flexible cord (ROM)	DDD1086
NSP	84	FCNB unit	RWZ3069
NSP	85	Flexible holder	RNE1647
NSP	86	Flexible cushion	REB1255
	87	Flexible holder	RNE1629
	88	Flexible cord A	RDD1293
	89	Cord keep	DNH1285
	90	Door SW plate A	RNE1684
	91	Insulation plate	DEC1313
	92	Door SW plate B	RNE1685
	93	Door SW spring	RBH1369
	94	Weight holder R assy	RXA1568
NSP	95	ROM plate R assy	DXA1698
NSP	96	Protector	DNK1340
	97	Power assy	DWR1133
NSP	98	Locking wire saddle	DEC1717
	99	ROM plate C assy	DXA1699
NSP	100	Locking wire saddle	DEC1717

Mark	No.	Description	Part No.
	101	Rack SW plate	RNE1682
NSP	102	PCB holder	PNW2100
	103	Washer	WT26D047D050
	104	SW cover	DNE1283
	105	E ring	YE30FUC
	106	Washer	WA42D080D050
	107	E ring	YE40FUC
	108	Washer	WA62D095D050
	109	Washer	WS30FMC
	110	Nut	NN30FUC
	111	Screw	BBZ30P060FMC
	112	Screw	BBZ30P180FMC
	113	Screw	ABZ30P060FMC
	114	Screw	ABZ40P080FMC
	115	Screw	PMH20P080FMC
	116	Screw	PMA26P050FMC
	117	• • • • •	
	118	Screw	SMH30H100FBT
	119	• • • • •	
NSP	120	Rubber sheet (B)	DEB1059
	121	Cord clamper	RNH-184
	122	Washer	WA52D080D025
	123	Rope pulley assy	RXA1645
	124	Trans label	VRW1105
	125	Protector sheet	DEC1601
	126	ROM guide	DNE1273
⚠	127	Power switch	DSH1034

8.4 FRONT DOOR SECTION

Mark	No.	Description	Part No.
	1	Under panel (ROM)	DNK2992
	2	Ceiling cover (ROM)	DNK3028
	3	Lock gear	RNG1061
	4	Lock cam plate	RNK2008
	5	Lock base	RNE1709
	6	Lock arm assy	RXA1600
	7	Badge (ROM)	DAM1072
	8	Display window	RNK1987
	9	Upper panel (ROM)	DNK2991
	10	Front door full assy	RXX1615
	11	Door sheet	REC1201
	12	Lock shaft	RLA1232
	13	Link holder	RNK2009
NSP	14	Door cover R (ROM)	DNE1285
	15	LD pad (large)	VEC1472
	16	Lock holder	RNE1662
NSP	17	Gasket	DEB1307
	18	Disc stocker guide label	DRW1582
	19	• • • • •	
	20	• • • • •	
	21	Panel cushion	DEC1814
NSP	22	Door stay	RNE1668
NSP	23	Door cover L	RNE1670
	24	Shipping P guide label	DRW1585
	25	Sipping holder	RNK2000
	26	Shipping plate (ROM)	DNK2980
	27	Washer	WT31D054D050
	28	Washer	YP40FBT
	29	Washer	WT41D065D050
	30	Screw	BBT30P080FZK
	31	Screw	BPZ30P080FCU
	32	Screw	BPZ30P060FCU
	33	Link plate	RNE1711
	34	Door packing C	REB1257
	35	Door packing A	REB1259
	36	Door holder assy	RXA1594
	37	Door assy (ROM)	DXA1701

8.5 CARRIAGE BASE SECTION

Mark	No.	Description	Part No.
	1	VD label (A) (ROM)	DRW1595
	2	VD cover	DNK3046
	3	VD shutter	RNK2011
	4	VD shutter SP	RBH1371
	5	Illumination panel	RNK1983
	6	Illumination plate	REC1200
	7	Lamp assy	REL1013
	8	Reflector	RNK1982
	9	Shield plate	RNE1648
NSP	10	Mini clamp	REC1211
	11	Shield case	RNE1754
	12	Insulation plate	DEC1471
NSP	13	IFLB unit	RWZ3064
	14	Switch lever	RNK2022
	15	Carriage plate spring	RBK1055
	16	SW gear stay	DNH1768
	17	SW cam gear	RNK1944
	18	S2M pulley S	DNK1389
	19	Motor stay 2	RNE1794
	20	Loading motor	VXM1048
	21	Worm stair	RNK2054
	22	S2M timing belt	DMS1006
	23	S2M pulley L	DNK1390
	24	Worm gear S	DLA1270
	25	SWSB unit	RWZ3131
	26	SW gear 2	DNK1843
	27	SW worm wheel	DNK1842
	28	Locking wire saddle	DEC1305
	29	Bearing	RNX1004
	30	Bearing shaft	RLA1289
	31	H spring 2	RBH1396
	32	H plate 1	DNH1412
	33	H1 spring	DBH1136
	34	CNNB stay	RNE1625
NSP	35	CNNB unit	RWZ3065
NSP	36	Cushion	VEC1489
	37	Carriage base assy	RXA1566
	38	Screw	RBA1110
	39	Belt stopper (L)	RNK1935
	40	TRKG spring	VBH1204
	41	Sensor spring	RBH1345
	42	Screw	ZMR30H100FBT
	43	Sensor stay (A)	RNE1617
	44	LVDN unit	RWZ3061
	45	Sensor holder spring	RBK1050
	46	Sensor stay (B) assy	RXA1571
	47	LVUP unit	RWZ3060
	48	Retainer	DNK1849
	49	Steel ball	VNX1006
	50	Turn table assy	RXA1576

Mark	No.	Description	Part No.
	51	RVDN unit	RWZ3063
	52	RVUP unit	RWZ3062
	53	Belt stopper (R)	RNK1936
	54	Bearing	DXB1283
	55	Bearing	DXB1231
	56	SW inducer	DNK1847
	57	SW follower	DNK2734
	58	SW arm	RNG1057
	59	Swing full assy (for service)	RXX1609
NSP	60	VCNB unit	RWZ3059
	61	Flat cable clamp	REC1202
	62	Cord clamper	RNH-184
	63	E ring	YE25FUC
	64	Washer	WT26D047D050
	65	Washer	WA41D065D025
	66	Washer	WC40S
	67	Screw	PMH30P080FMC
	68	Screw	IBZ20P060FMC
	69	Screw	BPZ30P080FCU
	70	Screw	PMB30P140FMC
	71	• • • • •	
	72	Screw	BMZ30P040FMC
	73	Screw	PMA30P040FCU
	74	Screw	BBZ30P060FZK
	75	Screw	BMZ26P100FZK
	76	Screw	PMA26P040FMC
	77	Screw	BMZ26P100FMC
	78	Screw M3 (3)	DBA1062
	79	Screw	SMZ30H100FBT
	80	Swing motor assy (for service)	RXX1610
	81	Flexible cushion A	REB1260

8.6 SWING FULL ASSY SECTION

Mark	No.	Description	Part No.
	1	Flexible cord C	RDD1292
NSP	2	SWGB unit	RWZ3066
	3	SW board stay	RNE1708
	4	Lever switch	DSK1003
	5	Insulation plate	DEC1313
	6	Timing pulley	DNK1805
	7	Motor stay 1(R)	DNH1399
NSP	8	Motor pulley	DNK1580
	9	Timing belt	DMS1015
	10	SCSW lever	RNK2004
	11	Push switch	DSG1012
	12	Mini clamp 2	REC1234
	13	Thrust stay	DNH1401
	14	• • • • •	
	15	SW base D assy	RXA1579
	16	CSL gear 2	DNK1820
	17	C gear 3	RNK2027
	18	SLF gear	DNK1806
	19	Lock spring	RBK1052
	20	Table cam	RNK1959
	21	CHN gear	RNK1970
	22	Cam gear (A)	RNK1969
	23	F gear	RNK1972
	24	Cam gear 1	RNK1973
	25	SL gear 3	RNK2002
	26	SLF gear 2	RNK2001
	27	SL gear 4	DNK1822
	28	SL gear 5	RNK1971
	29	Shaft holder	RNG1058
	30	Guide shaft (R)	RLA1206
	31	SL gear 7	RNK1974
	32	S2M pulley SL	RNK1975
	33	S2M belt	REB1241
	34	Slide plate	RNE1694
	35	SP spring	RBH1354
	36	Belt holder	RNK1949
	37	Chuck base assy	DXB1537
	38	Chuck guide	RNK2021
	39	Chuck spring 3	DBH1132
	40	Chuck stay	DLA1480
	41	Chuck 2 assy	RXA1582
	42	Chuck cam	RNK1963
	43	Chuck 1 assy	DXB1538
	44	Chuck washer 3	RNK2007
	45	Chuck spring 1	RBH1378
	46	Chuck spring 2	DBH1131
	47	Chuck washer	DNK1836
	48	Chuck washer 2	DNK1839
	49	Chuck spring 4	RBH1394
	50	Wing R	RNK1965

Mark	No.	Description	Part No.
	51	Wing L	RNK1964
	52	Rubber sheet	REB1231
	53	D release spring	RBH1353
	54	D release lever	RNK1947
	55	DGP spring	RBH1364
	56	D guide plate L	RNK1950
	57	DG height pin	RLA1246
	58	D guide spring 2	RBH1352
	59	D guide lever (L)	RNK1966
	60	D guide L	RNK1961
	61	DG holder (L) assy	RXA1597
	62	D guide spring 3	RBH1362
	63	C cam 2	RNK1948
	64	C cam plate	RNE1628
	65	D sense lever	RNK1960
	66	Push switch	DSG1014
	67	DSL spring	RBH1363
	68	D guide plate R	RNK1951
	69	D guide lever (R)	RNK1967
	70	D guide R	RNK1962
	71	DG holder (R) assy	RXA1598
	72	Guide sleeve	RLA1204
	73	D guide spring 1	RBH1351
	74	SL roller	RNK1977
	75	Stopper plate	RNE1791
	76	Tension spring	RBH1376
	77	Tension roller	RLP1050
	78	Tension plate assy	RXA1577
	79	C gear 4	DNS1098
	80	Guide shaft (L)	RLA1205
	81	Shaft holder 2	RNK1955
	82	SW base U assy	RXA1640
NSP	83	Mini clamp	REC1211
	84	SL gear 6	RNK2003
	85	D table spring L	RBH1347
	86	D table spring R	RBH1348
	87	TH spring	RBH1355
	88	TH hook	RNK1957
	89	Disc table assy	RXA1574
	90	Table shaft	RLA1207
	91	TH shaft	RLA1219
	92	TH cam	RNK1958
	93	TH cam spring	RBH1356
	94	DT roller	RLP1049
	95	Washer	WT26D047D050
	96	E ring	YE25FUC
	97	Washer	WT16D032D050
	98	Screw	BMZ26P040FMC
	99	Screw	PMA26P040FMC
	100	Screw	PMA20P030FMC
	101	Screw	PMH20P050FMC
	102	Screw	AMZ20P040FMC
	103	Screw	AMZ30P040FMC
NSP	104	Motor	PXM1002
	105	Motor assy (for service)	RXX1611

8.7 ROM DISC STOCKER ASSY SECTION

Mark	No.	Description	Part No.
	1	Encoder slit	RNE1619
	2	Disc address seal	DRY1150
	3	Rack cushion	REB1245
	4	ROM disc rack (L)	DNK2974
	5	ROM disc rack (R)	DNK2975
	6	RZ plate	RNE1635
	7	Holder plate	RNE1616
	8	Holder stopper	RBK1049
	9	Disc holder W	RNK1931
	10	Rack caution label A	RRW1146
	11	Rack caution label B	DRW1580
NSP	12	Rack base (B)	RNE1633
	13	RG plate	RNE1634
	14	Shipping guide	RNK1998
	15	DS side cover (L)	RNK1979
	16	DS side rail	RNK1984
	17	DS lock SP	RBH1358
	18	DS release lever	RNK1985
	19	DS lock plate	RNK1968
NSP	20	Rack base (A) assy	RXA1583
	21	E ring	YE40FUC
	22	Screw	BBZ30P080FMC
	23	Screw	IBZ20P060FMC
	24	Screw	ABZ30P060FMC
	25	DS side cover (R)	RNK1980
	26	Disc holder R	RNK2032
	27	Rack caution label A	DRW1579
	28	Magazine ID seal	DRW1577

8.8 ROM CLAMPER FULL ASSY SECTION (UPPER AND LOWER SECTION)

Mark	No.	Description	Part No.
	1	Yoke	RNE1627
NSP	2	C magnet	PMF1017
	3	Clamper retainer	RNK1945
	4	Clamper (ROM)	DNK2977
	5	• • • • •	
	6	• • • • •	
	7	• • • • •	
	8	• • • • •	
	9	Clamp SP	DBH1128
	10	Clamp lever	DNK1792
	11	Side base	DXB1269
	12	Disc stopper (ROM)	DNK2978
NSP	13	Clamper holder (L) assy	RXA1638
	14	Disc holder SP (L)	RBH1349
	15	Disc holder SP (R)	RBH1350
	16	Disc holder (L)	RNK1942
	17	Disc holder (R)	RNK1943
	18	Side rack (L)	RNK1940
	19	Side rack (R)	RNK1941
	20	Synchronized SP	RBH1381
	21	Synchronized lever (L)	DXB1270
	22	D holder guide	RNK1986
NSP	23	Clamper stay assy	RXA1573
	24	CDP slit	RNE1620
	25	Slit holder (L)	RNK1938
	26	Slit holder (R)	RNK1939
NSP	27	SSEB unit (upper section only)	RWZ3076
	28	Clamp cam gear	DNK1876
	29	Timing belt	DMS1015
	30	Timing pulley	DNK1805
	31	CL gear B	DNK1796
	32	CL gear A	DNK1795
	33	CL gear C	DNK1797
	34	Gear base assy	RXA1644
	35	Switch lever A	RNK1952
	36	Gear stay L	RNE1688
	37	• • • • •	
NSP	38	CMSL unit (upper section only)	RWZ3071
NSP	39	CMSB unit (lower section only)	RWZ3132
	40	Switch lever B	RNK1953
	41	Switch lever C	RNK1954
NSP	42	Motor	PXM1002
	43	Motor bracket	DNH1386
NSP	44	Motor pulley	DNK1580
	45	Synchronized lever (R)	DXB1271
NSP	46	Clamper holder (R) assy	RXA1639
	47	Cord clamper	RNH-184
	48	Washer	WT26D047D050
	49	Washer	WT34D060D025
	50	Washer	WA72D110D050
	51	E ring	YE40FUC
	52	E ring	YE30FUC
	53	Washer	WT34D060D050
	54	Screw	ABZ30P050FZK
	55	Screw	IPZ20P050FMC
	56	Screw	AMZ30P040FMC
	57	Screw	IBZ20P060FMC
	58	Screw	PMB20P040FMC
	59	Drive lever (L)	DXB1272
	60	Drive lever (R)	DXB1273
	61	Caution label (upper section only)	DRW1625
	62	Screw	BBZ30P060FMC
	63	Clamp motor assy (for service)	RXX1612
	64	Connector assy 2P	RKP1649
	65	Protector (lower section only)	DEB1284

8.9 CD-ROM PLAYER SECTION

Mark	No.	Description	Part No.
	1	SRVB unit	DWX1496
	2	ROMB unit	DWX1497
	3	SPDLB unit	DWX1498
	4	FPCB unit	DWX1499
	5	Connector assy 6P	DKP2887
	6	Connector assy 10P	DKP2888
	7	Connector assy 13P	DKP2889
	8	Short pin	OKX1005
	9	Small connector	PF04PP6B05
	10	ROM base assy	DXA1702
	11	Servo mechanism assy 500	DXB1524
NSP	12	ROM box	DNE1270
	13	Float screw	DBA1048
	14	Float spring F	DBH1208
	15	Float spring R	DBH1209
	16	Float rubber	DEB1203
	17	Lock arm 500	DNH1938
	18	Solenoid	DXP1036
NSP	19	Plunger cushion	DEB1287
	20	Flexible cable clamp	DEC1844
	21	Mini clamp	DEC1795
NSP	22	Clamp	PNW1760
NSP	23	Guard cloth	DED1088
	24	Wire clip D	VEC1626
	25	Caution label	VRW1094
	26	Screw	BBZ20P040FMC
	27	Screw	BBZ30P040FZK
	28	Screw	BBZ30P060FMC
	29	Screw	PMA26P040FMC
	30	Washer	WC50FMC

Mark	No.	Description	Part No.
	31	Binder	Z09-056
NSP	32	ROM rack	DNE1264
	33	Caution label (G)	VRW-329
	34	Cord clamper	RNH-184
	35	• • • • •	
	36	Connector assy 13P	DKP2505
	37	Bobbin fixed screw	DBA1054
	38	Lock spring	DBH1207
	39	Clamp SP	DBH1261
	40	Plastic rivet	DEC-176
NSP	41	Table sheet	DEC1484
	42	Guide shaft	DLA1530
NSP	43	Disc table	DLA1631
NSP	44	Spin table	DLA1634
NSP	45	Centering hab	DLA1635
	46	Shield case	DNH1677
	47	Slit plate	DNH1712
	48	Support plate	DNH1713
	49	Carriage base	DNK2401
	50	FPC holder	DNK2402
	51	Lock teeth 500	DNK2979
	52	Spindle motor	DXM1051
	53	Drive unit	DXP1029
	54	Speed detecting unit	DXP1030
	55	Rubber ring	PEB1097
	56	Screw C	VBA1014
	57	Pickup assy-S.S	DXX2215
	58	Screw	APZ30P080FMC
	59	Screw	BPZ30P100FMC
	60	Screw	IPZ30P060FMC
	61	Screw	PMH20P060FMC
	62	Washer	WA42N100W050
	63	Screw	ZMD26H060FBT
	64	Screw M2 × 5	Z39-020
	65	PU flexible cable	DNP1428
	66	Protector	DNK1340
	67	Cord keep	DNH1285

8.10 PACKING

(1)CHANGER SECTION

Mark	No.	Description	Part No.
	1	• • • • •	
	2	Key assy	DXC1002
	3	Connector with terminate resistor	DCN1040
	4	Packing sheet	RHC1050
	5	Support plate (ROM)	DNE1272
	6	AC power cord	DDG1028
	7	Screw (A) assy	RXA1612
	8	Conversion plug	OKX1002
NSP	9	Polyethylene bag	VHL-014
NSP	10	Service net sheet	ORM1048
	11	• • • • •	
NSP	12	Polyethylene bag	Z21-023
	13	PP joint	AHG-204
	14	Screw	AMZ40P080FZK
	15	Operating instructions (English/French/Dutch/Japanese)	DRM1160
	16	Pad (upper)	RHA1132
	17	Pad (under)	RHA1133
	18	Packing bag	RHL1019
	19	Rear pad	RHA1159
	20	Packing sheet	RHC1023
	21	Packing sheet	RHC1052
	22	Packing case	DHG1599

(2)ROM DISC STOCKER SECTION

Mark	No.	Description	Part No.
	1	Rack cushion	RHA1134
	2	Packing sheet	RHC1023
	3	Rack packing case spacer	RHC1045
	4	Rack packing case cushion	DEC1816
	5	Rack master spacer	RHC1046
	6	Rack packing case	DHG1623
	7	Master carton	RHG1509

8.11 DR-D504X

Mark	No.	Description	Part No.
NSP	1	CD-ROM player unit	DWY1037
NSP	2	Label	DAL1090
NSP	3	Serial label	DRW1578
NSP	4	Follow up card bag	DHL1011
NSP	5	Follow up card	DRY1032
	6	Packing pad	DHA1302
	7	Packing case	DHG1601
	8	Polyethylene bag	DHL1093

9. PCB PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits(any digit apart from 0), such as 560 ohm and 47k ohm(tolerance is shown by J=5%, and K=10%).

560 Ω → 56 × 10¹ → 561 ····· RD1/8PM 5 6 1 J
47k Ω → 47 × 10³ → 473 ····· RD1/4PS 4 7 3 J
0.5 Ω → 0R5 ····· RN2H 0 R 5 K
1 Ω → 010 ····· RS1P 0 1 0 K

Ex.2 When there are 3 effective digits(such as in high precision metal film resistors).

5.62k Ω → 562 × 10¹ → 5621 ····· RN1/4PC 5 6 2 1 F

Mark	No.	Description	Part No.
LIST OF ASSEMBLIES			
		POWER ASSY	DWR1133
		POWER SUPPLY BOARD ASSY	DWM1455
		├─ PWRB UNIT	DWX1526
		└─ PSSWB UNIT	DWX1527
		MECHANISM CONTROL BOARD ASSY	DWM1443
		├─ CMCB UNIT	DWX1500
		├─ IDSB UNIT	DWX1502
		├─ JCKB UNIT	DWX1503
		└─ SIDEB UNIT	DWX1504
		CMLB UNIT	RWM1677
NSP		├─ FCNB UNIT	RWZ3069
NSP		├─ ENCB UNIT	RWZ3070
NSP		├─ CMSL UNIT	RWZ3071
		├─ KEYB UNIT	RWZ3072
		├─ LEDB UNIT	RWZ3073
		├─ SSDC UNIT	RWZ3074
NSP		├─ LAMP UNIT	RWZ3075
NSP		├─ SSEB UNIT	RWZ3076
NSP		├─ SSAB UNIT	RWZ3077
NSP		└─ CMSB UNIT	RWZ3132
		MECB UNIT	RWM1656
NSP		├─ VCNB UNIT	RWZ3059
		├─ LVUP UNIT	RWZ3060
		├─ LVDN UNIT	RWZ3061
		├─ RVUP UNIT	RWZ3062
		├─ RVDN UNIT	RWZ3063
NSP		├─ IFLB UNIT	RWZ3064
NSP		├─ CNNB UNIT	RWZ3065
NSP		├─ SWGB UNIT	RWZ3066
		└─ SWSB UNIT	RWZ3131
NSP		CD-ROM PLAYER UNIT	DWY1037
		├─ PLAYER BOARD ASSY	DWM1442
		│ ├─ SRVB UNIT	DWX1496
		│ ├─ ROMB UNIT	DWX1497
		│ ├─ SPDLB UNIT	DWX1498
		│ └─ FPCB UNIT	DWX1499
		└─ SERVO MECHANISM ASSY 500	DXB1524
		└─ PICKUP ASSY-S. S	DXX2215
NSP		└─ PCKB UNIT	DWM1280
NSP		├─ POSS UNIT	DWX1280
NSP		└─ HEAD UNIT	DWY1022

Mark	No.	Description	Part No.
POWER ASSY			
OTHERS			
⚠		RESISTOR	DCN1029
⚠		RESISTOR	DCN1030
⚠		FUSE 2. 5A(20mm)	DEK1056
⚠		FUSE 2. 5A(20mm)	DEK1057
⚠		IC PROTECTOR	DIC1001
⚠		IC PROTECTOR	DIC1002
⚠		TRANSISTOR	DTR1001
⚠		TRANSISTOR	DTR1002
PWRB UNIT			
SEMICONDUCTORS			
		IC107	ICP-N15
		IC108	ICP-N20
		Q102	2SC3246
		Q101	2SD1266
		Q200, Q201	DTC124ES
		D106-D109	11ES2
		D111	MTZ13B
		D112	RB100A
		D110	RBA-406B
		D105	S2VB20
RELAY			
		RY1	DSR1012
CAPACITORS			
		C130, C131	CEAS222M16
		C146	CEAS470M16
		C145, C147	CEAS470M25
		C116-C119	CKCYF103Z50
		C148	CKCYF473Z50
		C132 (8200pF/25V)	DCH1042
		C129 (10000pF/16V)	VCH1054
RESISTORS			
		R119	RS3LMF2R2J
		Other Resistors	RD1/6PM□□□J

Mark	No.	Description	Part No.
OTHERS			
	CN422	MT CONNECTOR 3P	173981-3
	CN420	AMP CONNECTOR 3P	4-173981-3
	CN413	2.54mm PITCH PIN HEADER (9201B-1-03T-G)	GGC1061
	HEAT SINK(L)		ANH-575
	CN414	2P TOP POST(EH)	B2B-EH
	CN403-CN411, CN423, CN424	2P-VH CONNECTOR	B2P3-VH
	CN500, CN501	2P-VH CONNECTOR	B2P3-VH
	CN412	4P TOP POST(EH)	B4B-EH-E
	CN415, CN416	4P TOP POST(VH)	B4P-VH
	CN417	5P-VH CONNECTOR	B5P-VH
	CN402, CN418	7P-VH CONNECTOR	B7P-VH
	CN401	8P-VH CONNECTOR	B8P-VH
	H101-H124, H129-H136	FUSE HOLDER	RKR1002

PSSWB UNIT

SWITCH

	S1		DSH1015

OTHERS

	CN419	7P-VH CONNECTOR	B7P-VH

CMCB UNIT

SEMICONDUCTORS

	IC108		4AM12
	IC106		BA10339F
	IC212		BA10393F
	IC514		DYW1372
	IC516		HD6415108F10
	IC510	(HM62256ALFP-8T)	GGC1059
	IC202		LM2940CT-5.0
	IC515		MAX662CSA
	IC45	(NCR53C90A-80QFP)	GGC1010
	IC104, IC105		NJM4565M
	IC531, IC532		NM93C66EM8
	IC203		PST523E
	IC111		TA7288P
	IC109, IC110, IC533		TA7291P
	IC102		TC4077BF
	IC502, IC509		TC74AC04F
	IC513		TC74AC08F
	IC511		TC74AC139F
	IC590		TC74AC244F
	IC503		TC74AC32F
	IC507, IC508		TC74AC573F
	IC500, IC501		TC74AC574F
	IC101		TC74HC00AF
	IC530		TC74HC04AF
	IC524, IC526		TC74HC08AF

Mark	No.	Description	Part No.
	IC103		TC74HC123AF
	IC517, IC525		TC74HC138AF
	IC521-IC523		TC74HC244AF
	IC107, IC518-IC520, IC527-IC529		TC74HC32AF
	IC506	(UPD71037GB-10-3B4)	GGC1060
	Q201		2SA1037K
	Q202		2SC2412K
	Q107, Q108		DTA114TK
	Q103, Q105		DTA124EK
	Q101, Q102, Q104, Q106		DTC124EK
	Q109, Q110		DTC124EK
	D11		D1FS4
	D101-D106, D109, D114-D121		DA116
	D111		MTZ10B
	D107, D108, D110, D220		MTZ7.5B
	D112, D205-D211		MTZ8.2B
	D113		SEL6C10R-TS

COIL AND FILTER

	F50		DTH1122
	L201		LFA220K

CAPACITORS

	C625, C626		CCSQCH100D50
	C632, C638		CEAS100M16
	C621, C622		CEAS100M50
	C102, C204, C232, C612, C615		CEAS101M10
	C633		CEAS101M10
	C604, C605		CEAS101M16
	C120		CEAS220M50
	C635, C636		CEAS331M16
	C628, C640, C660		CEAS331M6R3
	C124, C203		CEAS470M25
	C121		CEASR47M50
	C111-C113		CFTXA224J50
	C109, C110		CFTXA823J50
	C639, C642, C645		CKSQYF102Z50
	C234, C235, C613, C616, C623		CKSQYF103Z50
	C641, C643, C695		CKSQYF103Z50
	C620, C627, C629, C634		CKSQYF104Z50
	C101, C105, C118, C119, C123		CKSQYF223Z50
	C125-C131, C202, C230, C233		CKSQYF223Z50
	C600-C603, C607, C609-C611		CKSQYF223Z50
	C614, C617, C624, C637		CKSQYF223Z50
	C646-C656, C658, C659		CKSQYF223Z50
	C661-C663		CKSQYF223Z50
	C630, C631		CKSQYF473Z50
	C618, C619		CKSYF105Z16
	C108		CQMA102J50
	C106, C107		CQMA152J50
	C122		CQMA223J50
	C104		CQMA392J50
	C229		CQMA471J50
	C103, C114, C115		CQMA472J50
	C116, C117		CQMA473J50
	C236	(2200p×8)	DCG1004

Mark	No.	Description	Part No.
RESISTORS			
	R747	(10Ω)	DCN1038
	R715, R717, R722, R726, R727	(100Ω×8)	DCX1020
	R744, R749	(100Ω×8)	DCX1020
	R700, R721, R723-R725	(10kΩ)	OCN1007
	R728-R732, R746, R750	(10kΩ)	OCN1007
	R720	(47kΩ)	OCN1020
	R132, R133		RD1/2PM4R7J
	R147, R148		RS3LMFR22J
	VR101		VRTB6VS103
	Other Resistors		RS1/10S□□□J
OTHERS			
	CN14	MT CONNECTOR 7P	173981-7
	CN15	MT CONNECTOR 9P	173981-9
	CN18	ZH CONNECTOR	B10B-ZR
	CN19	ZH CONNECTOR	B13B-ZR
	CN314	2P TOP POST	B2P-SHF-1AA
	CN309	3P TOP POST(VH)	B3P-VH
	CN5	4P TOP POST(EH)	B4B-EH-E
	CN13, CN311	KR CONNECTOR	B4B-PH-K
	CN6	4P TOP POST(VH)	B4P-VH
	CN4	KR CONNECTOR	B5B-PH-K
	CN1	KR CONNECTOR	B5B-PH-K-E
	CN3	KR CONNECTOR	B5B-PH-K-R
	CN2	KR CONNECTOR	B5B-PH-K-Y
	CN17	KR CONNECTOR	B6B-PH-K
	CN16	KR CONNECTOR	B8B-PH-K-Y
	IC SOCKET		DKH1014
	HEAT SINK 2		DNG1033
	HEAT SINK 3		DNG1034
	X3	CRYSTAL OSCILLATOR	DSS1029
	FU12	FUSE(1A)	OEK1004
	CN12	CONNECTOR(50)	OKP1048
	HEAT SINK A		RNE1752
	X201	CRYSTAL RESONATOR(19.6608MHz)	RSS1040

IDSB UNIT

Mark	No.	Description	Part No.
OTHERS			
	CN100, CN104	KR CONNECTOR	B4B-PH-K
	CN103	KR CONNECTOR	B4B-PH-K-E
	CN101	KR CONNECTOR	B4B-PH-K-R
	CN102	KR CONNECTOR	B4B-PH-K-Y

JCKB UNIT

Mark	No.	Description	Part No.
CAPACITORS			
	C700-C707		CKSQYB472K50
OTHERS			
	CN105	KR CONNECTOR 3P	B3B-PH-K
	CN108	KR CONNECTOR	B3B-PH-K-E
	CN106	KR CONNECTOR	B3B-PH-K-R
	CN107	KR CONNECTOR	B3B-PH-K-Y
	JA1	8P PIN JACK	DKB1043

SIDEB UNIT

Mark	No.	Description	Part No.
OTHERS			
	CN110	ZH CONNECTOR	B10B-ZR
	CN111	ZH CONNECTOR	B13B-ZR

FCNB UNIT

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	D632, D634		SEL6410G-TS
	D631, D633		SEL6C10R-TS
RESISTORS			
	R631		RA4S561J
	Other Resistors		RD1/6PM□□□J
OTHERS			
	CN101, CN102	FLEXIBLE CONNECTOR	5597-23APB

ENCB UNIT

Mark	No.	Description	Part No.
SEMICONDUCTOR			
	IC601		GP1A30R
CAPACITOR			
	C601		CKPUYF223Z25
RESISTORS			
	All Resistors		RD1/6PM□□□J
OTHERS			
	CN107	KR CONNECTOR	S4B-PH-K

CMSL UNIT

Mark	No.	Description	Part No.
SWITCHES			
	S611-S613		DSG1015
CAPACITOR			
	C611		CKPUYF223Z25
OTHERS			
	CN105	MT CONNECTOR 2P	173981-2
	CN104	KR CONNECTOR 3P	B3B-PH-K
	CN103	KR CONNECTOR	B8B-PH-K-Y

KEYB UNIT

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	IC701		HD74HC165P
	D701-D704		MTZ8.2B
SWITCHES			
	S702		RSB1010
	S703-S710		RSG1034
	S701		RSX1005

Mark	No.	Description	Part No.
CAPACITOR			
	C701		CKPUYF223Z25
RESISTORS			
	R701		RA8S103J
	Other Resistors		RD1/6PM□□□J
OTHERS			
	CN108	MT CONNECTOR 7P	173979-7
	EARTH PLATE		VNF-091

LEDB UNIT

SEMICONDUCTORS			
	IC721		MC14489P
	D721-D723		SL-9284-22
	D724		SLH-56MC35H
	D725		SLH-56VC35H
CAPACITOR			
	C721		CKPUYF223Z25
RESISTORS			
	All Resistors		RD1/6PM□□□J
OTHERS			
	CN123	MT CONNECTOR 7P	173979-7
	INDICATOR HOLDER		RNK2028

SSDC UNIT

SEMICONDUCTORS			
	IC741		HD74HC165P
	Q742		2SC3246
	Q744		XDA144ES
	Q745, Q746		XDC114ES
	D741		11ES2
CAPACITORS			
	C745		CEAS101M10
	C741		CEAS101M25
	C746		CKCYF103Z50
RESISTORS			
	R747		RA7S103J
	Other Resistors		RD1/6PM□□□J
OTHERS			
	CN118	MT CONNECTOR 2P	173981-2
	CN115	MT CONNECTOR 3P	173981-3
	CN110	MT CONNECTOR 7P	173981-7
	CN109	MT CONNECTOR 9P	173981-9
	CN121	AMP CONNECTOR 2P	2-173981-2
	CN119	AMP CONNECTOR 2P	4-173981-2
	CN116	AMP CONNECTOR 3P	4-173981-3
	CN120	AMP CONNECTOR 2P	6-173981-2
	CN114	2P TOP POST(EH)	B2B-EH
	PCB BINDER		VEF1040

Mark	No.	Description	Part No.
LAMP UNIT			
	No service part		

SSEB UNIT

SEMICONDUCTOR			
	D621		SIR-56SB3H
OTHERS			
	CN106	MT CONNECTOR 2P	173981-2

SSAB UNIT

OTHERS			
	CN125	MT CONNECTOR 3P	173981-3
	REMOTE SENSOR		GP1U57X

CMSB UNIT

SWITCHES			
	S614-S616		DSG1015
CAPACITOR			
	C612		CKPUYF223Z25
OTHERS			
	CN127	KR CONNECTOR 3P	B3B-PH-K
	CN126	KR CONNECTOR	B6B-PH-K

VCNB UNIT

CAPACITORS			
	C101		CEAL101M6R3
	C102-C108		CKPUYF223Z25
OTHERS			
	CN203	MT CONNECTOR 3P	173979-3
	CN207	MT CONNECTOR 4P	173979-4
	CN202	AMP CONNECTOR 3P	4-173979-3
	CN201	FLEXIBLE CONNECTOR	5597-23APB
	CN205	AMP CONNECTOR 3P	6-173979-3
	EARTH PLATE		VNF-091

Mark	No.	Description	Part No.
LVUP UNIT			
SEMICONDUCTOR			
	D202		GP1A15
CAPACITOR			
	C202		CKPUYF223Z25
RESISTORS			
	All Resistors		RD1/6PM□□□J
OTHERS			
	CN211	MT CONNECTOR 3P	173981-3
LVDN UNIT			
SEMICONDUCTOR			
	D201		GP1A15
CAPACITOR			
	C201		CKPUYF223Z25
RESISTORS			
	All Resistors		RD1/6PM□□□J
OTHERS			
	CN210	AMP CONNECTOR 3P	4-173981-3
RVUP UNIT			
SEMICONDUCTOR			
	D204		GP1A15
CAPACITOR			
	C204		CKPUYF223Z25
RESISTORS			
	All Resistors		RD1/6PM□□□J
RVDN UNIT			
SEMICONDUCTOR			
	D203		GP1A15
CAPACITOR			
	C203		CKPUYF223Z25
RESISTORS			
	All Resistors		RD1/6PM□□□J

Mark	No.	Description	Part No.
IFLB UNIT			
SEMICONDUCTORS			
	Q401, Q402		2SC3243
COILS			
	L403	(150 μH)	DTH1120
	L404		DTT1081
	L401, L402		LFA270K
CAPACITORS			
	C401, C402		CEAL470M16
	C404	(22pF)	DCG1008
	C403	(0.033 μF)	DCH1054
RESISTORS			
	All Resistors		RD1/6PM□□□J
OTHERS			
	CN225	2P-VH SIDE CONNECTOR	B2P4S-VH
	INSULATOR		DEC1471
CNNB UNIT			
OTHERS			
	CN215	FLEXIBLE CONNECTOR	5597-10APB
SWGB UNIT			
CAPACITORS			
	C301, C302		CKPUYF223Z25
OTHERS			
	CN219	MT CONNECTOR 3P	173979-3
	CN221	AMP CONNECTOR 3P	4-173979-3
	CN216	FLEXIBLE CONNECTOR	52044-1010
	CN222	AMP CONNECTOR 3P	6-173979-3
SWSB UNIT			
SWITCHES			
	S501-S503		DSG1017
OTHERS			
	CN224	MT CONNECTOR 4P	173979-4

Mark	No.	Description	Part No.
SRVB UNIT			
SEMICONDUCTORS			
	IC23, IC55		NJM082M
	IC1		NJM2060M
	IC3		NJM2901M
	IC2		NJM311M
	IC54		NJM4558M
	IC20, IC8		NJM4560M
	IC4		PM3003A
	IC9		TA8449P
	IC7		TC4052BF
	IC10-IC12, IC17-IC19, IC26		TC4S66F
	IC22		TC74HCU04AF
	Q21, Q5		2SA1037K
	Q10		2SB1185-F8
	Q15-Q17		2SC2223
	Q35		2SC2412K
	Q1, Q32		2SD1614
	Q9		2SD1762-F8
	Q2, Q33, Q37, Q40, Q6		DTA124EK
	Q18, Q19, Q3, Q31, Q36		DTC124EK
	Q38, Q39, Q4, Q7, Q8		DTC124EK
	D10, D8		DA119
	D1		MTZJ4. 3B
	D7, D9		RB100A
FILTERS			
	F1, F2		DTH1122
CAPACITORS			
	C16, C91		CCSQCH100D50
	C52		CCSQCH101J50
	C86		CCSQCH121J50
	C34		CCSQCH221J50
	C88		CCSQCH271J50
	C93		CCSQCH331J50
	C18		CCSQSL391J50
	C28		CCSQSL471J50
	C87		CCSQSL681J50
	C106, C14, C15, C35, C36		CEAL100M16
	C39, C40, C46, C47, C59		CEAL100M16
	C62, C64, C82		CEAL100M16
	C1, C11, C12, C3, C5		CEAL101M6R3
	C85, C90		CEAL101M6R3
	C30-C33		CEAL220M16
	C25		CEAL220M6R3
	C120		CEAL2R2M50
	C7, C9		CEAL470M16
	C71		CEALNP010M50
	C121, C72		CEALNP100M16
	C60		CEALNP220M16
	C37, C58		CEALNP470M6R3
	C56, C70		CEALNPR47M50
	C51, C69		CFTXA103J50
	C119, C42, C50		CFTXA104J50
	C68		CFTXA154J50
	C41		CFTXA183J50
	C117		CFTXA222J50
	C73		CFTXA224J50
	C118		CFTXA332J50

Mark	No.	Description	Part No.
	C54, C66		CFTXA473J50
	C53, C55, C67		CFTXA683J50
	C122, C17, C26		CKSQYB102K50
	C19, C61, C83		CKSQYB103K50
	C22, C49		CKSQYB152K50
	C57		CKSQYB472K50
	C38		CKSQYB681K50
	C45		CKSQYF153Z50
	C95		CKSQYF223Z50
	C186		CKSQYF333Z50
	C10, C13, C146, C147		CKSQYF473Z50
	C194, C195, C197, C198, C2		CKSQYF473Z50
	C20, C200-C203, C21		CKSQYF473Z50
	C23, C24, C27, C29, C4		CKSQYF473Z50
	C43, C44, C6, C63, C65		CKSQYF473Z50
	C8, C84, C89, C98, C99		CKSQYF473Z50
	C48		CKSQYF683Z50
	C96, C97		CKSYF474Z50
RESISTORS			
	R29, R308		RD1/2PM2R7J
	R25		RD1/2PM4R7J
	VR1, VR2		VRTB6HS103
	VR4		VRTB6HS472
	VR3		VRTB6HS473
	Other Resistors		RS1/10S□□□J
OTHERS			
	CN28, CN30	DIN CONNECTOR	53229-0200
	CN50	KR CONNECTOR	B4B-PH-K
	CN8	3PIN SIDE POST	BS3P-SHF-1AA
	CN3	5PIN SIDE POST	BS5P-SHF-1AA
	NYLON RIVET		DEC-117
	HEAT SINK A		DNG1050
	CN4	ZH CONNECTOR 10P	S10B-ZR
	CN11	ZH CONNECTOR 13P	S13B-ZR
	CN19	KR CONNECTOR	S2B-PH-K
	CN51	KR CONNECTOR	S4B-PH-K
	CN6	KR CONNECTOR	S6B-PH-K
	CN2	KR CONNECTOR	S9B-PH-K
ROMB UNIT			
SEMICONDUCTORS			
	IC36		DYW1371
	IC27		LC7883KM
	IC44		M51957AL
	IC43	(MB81C78A-35PF)	GGC1007
	IC42	(MB81C81A-35PJ)	GGC1006
	IC41	(MB841000-10SLPF)	GGC1005
	IC34	(MB84256A-70LLPF)	GGC1004
	IC71		MC34268D
	IC70		MCCS142235DW
	IC45	(NCR53C90A-80QFP)	GGC1010
	IC25, IC30, IC5		NJM2058M
	IC28, IC6		NJM4558M
	IC72		NJM78L05UA
	IC73		NJM79L05UA
	IC24		PD4379C

Mark	No.	Description	Part No.
	IC40		PD4380B
	IC29		TC4052BF
	IC13-IC16, IC50		TC4S66F
	IC39		TC74AC00F
	IC35		TC74AC04F
	IC38		TC74AC138F
	IC52		TC74AC157F
	IC603		TC74AC32F
	IC37		TC74AC574F
	IC33	(UPD70325GJ-10-5BG)	GGC1062
	Q11-Q14, Q20		2SA1037K
	Q23, Q24, Q34		2SC2412K
	Q27, Q28		DT5A124E
	Q25		DTA124EK
	Q22, Q26, Q601-Q603		DTC124EK
	D30, D31		DA119
	D2		DAP202K
	D604		GL3HS43
	D601-D603		GL3KG43
	D3		KV1420
	D20, D21		RB100A

COILS AND FILTERS

	F11, F3, F5-F8		DTH1122
	L4		DTH1163
	L2	(1 μH)	DTL1012
	L3		PTF1016

SWITCH

	S1		DSX1044

CAPACITORS

	C220		CCSQCH220J50
	C192, C193		CCSQCH101J50
	C150, C151		CCSQCH150J50
	C123, C124		CCSQCH220J50
	C100, C101		CKSQYF104Z25
	C104		CCSQCH330J50
	C110		CCSQCH470J50
	C138, C139		CCSQSL471J50
	C208		CEAL010M50
	C126, C143, C144, C169, C180		CEAL100M16
	C184, C199, C206, C209-C212		CEAL100M16
	C204, C401, C404		CEAL101M6R3
	C132, C133, C135, C136		CEAL220M16
	C141, C142		CEAL220M16
	C207		CEAL220M6R3
	C105		CEAL3R3M50
	C74		CEALNP010M50
	C75		CEALNP100M16
	C129		CEAS471M10
	C177		CKSQYB102K50
	C111, C112, C76, C77		CKSQYB103K50
	C80, C81		CKSQYB182K50
	C78		CKSQYB222K50
	C107		CKSQYB332K50
	C113		CKSQYB562K50
	C137, C140, C79		CKSQYB821K50
	C170		CKSQYF103Z50
	C102, C103, C114-C116, C125		CKSQYF473Z50
	C127, C128, C130, C131, C134		CKSQYF473Z50
	C145, C162, C163, C165, C166		CKSQYF473Z50
	C168, C172-C176, C179, C181		CKSQYF473Z50
	C190, C191, C196, C205, C400		CKSQYF473Z50
	C402, C403, C405, C620-C622		CKSQYF473Z50
	C108		CKSYF474Z50
	C148, C149	(22 μF/16V)	RCH1085

RESISTORS

	R296		RA4T103J
	R197, R198		RA5T223J
	R636		RA6T103J
	R297		RA8T103J
	R184, R187, R317, R319, R322		RS1/10S103F
	R326		RS1/10S103F
	R320, R325		RS1/10S183F
	R321, R324		RS1/10S472F
	R318, R323		RS1/10S563F
	VR6		VRTB6HS104
	VR7		VRTB6HS473
	Other Resistors		RS1/10S□□□J

OTHERS

	CN32	3P BOARD CONNECTOR	5124-03BHPB
	CN7	4P BOARD CONNECTOR	5124-04BHPB
	CN17	2mm PITCH BOTTOM CONNECTOR	52084-0410
	CN16	2mm PITCH BOTTOM CONNECTOR	52084-1110
	CN27, CN29	DIN CONNECTOR	52299-0200
	CN408	2.54mm PITCH PIN HEADER (9201B-2-12T-G)	GGC1063
	CN14	KR CONNECTOR	B4B-PH-K
	IC SOCKET		DKH1015
	X3	CRYSTAL OSCILLATOR	DSS1029
	X2	CRYSTAL RESONATOR(17.0000MHz)	DSS1056
	CN23	CONNECTOR	OKP1039
	X1	CRYSTAL RESONATOR(16.9344MHz)	PSS1008
	CN10	KR CONNECTOR	S3B-PH-K
	CN407	KR CONNECTOR	S5B-PH-K

Mark	No.	Description	Part No.
SPDLB UNIT			
SEMICONDUCTORS			
	IC601, IC602		NJM4556M-B
	Q607-Q609		2SB1185-F8
	Q604-Q606		2SD1762-F8
CAPACITORS			
	C604, C605		CEAL100M16
	C606-C608		CEALNP010M50
	C613-C619		CKSQYB221K50
RESISTORS			
	All Resistors		RS1/10S□□□J
OTHERS			
	CN410	KR CONNECTOR	B6B-PH-K
	NYLON RIVET		DEC-117
	HEAT SINK		DNG1049
	CN406	UP CONNECTOR	W-P7913#11
FPCB UNIT			
CAPACITORS			
	C214, C617		CKSQYF104Z25
RESISTORS			
	All Resistors		RS1/10S□□□J
OTHERS			
	CN42	FLEXIBLE CONNECTOR	5597-23APB
	CN41	ZH CONNECTOR (10P POST)	S10B-ZR
	CN40	ZH CONNECTOR (13P POST)	S13B-ZR
POSS UNIT			
SEMICONDUCTOR			
	IC2		GP1A30R
CAPACITOR			
	C20		CKSQYF473Z50
RESISTORS			
	All Resistors		RS1/10S□□□J
OTHERS			
	CN103	FLEXIBLE CONNECTOR	52207-0490

Mark	No.	Description	Part No.
HEAD UNIT			
SEMICONDUCTORS			
	IC1		NJM2060M
	Q2-Q4		2SC2223
	Q1		2SK217ZD
CAPACITORS			
	C12, C13		CCSQCH040C50
	C9		CCSQCH050C50
	C10, C11		CCSQCH220J50
	C2-C4		CCSQSL561J50
	C5		CKSQYB103K50
	C21		CKSQYF104Z25
	C1, C16, C17, C7		CKSQYF473Z50
	C8	(3.3 μF/6.3V)	DCH1071
	C14, C15, C18	(47 μF/6.3V)	RCH1070
	C6	(1 μF/50V)	RCH1075
RESISTORS			
	VR5	(10kΩ)	RCP1085
	Other Resistors		RS1/10S□□□J
OTHERS			
	CN101	FLEXIBLE CONNECTOR	52207-1990

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Service Manual

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CD-ROM CHANGER
DRM-5004X
CD-ROM DRIVE UNIT
DR-D504X

CHAPTER 2

CONTENTS

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
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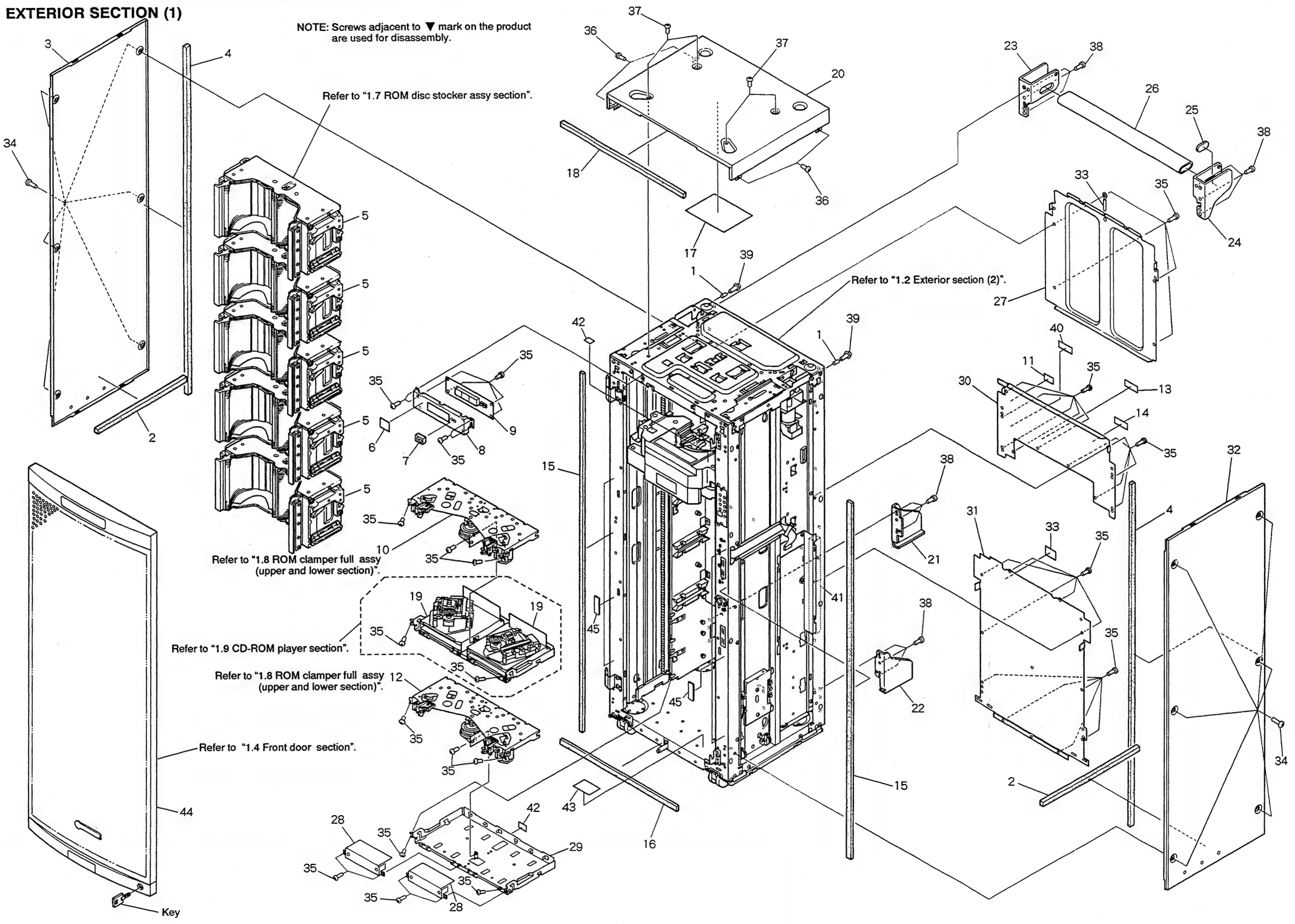
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

T-IFI JULY 1994 Printed in Japan

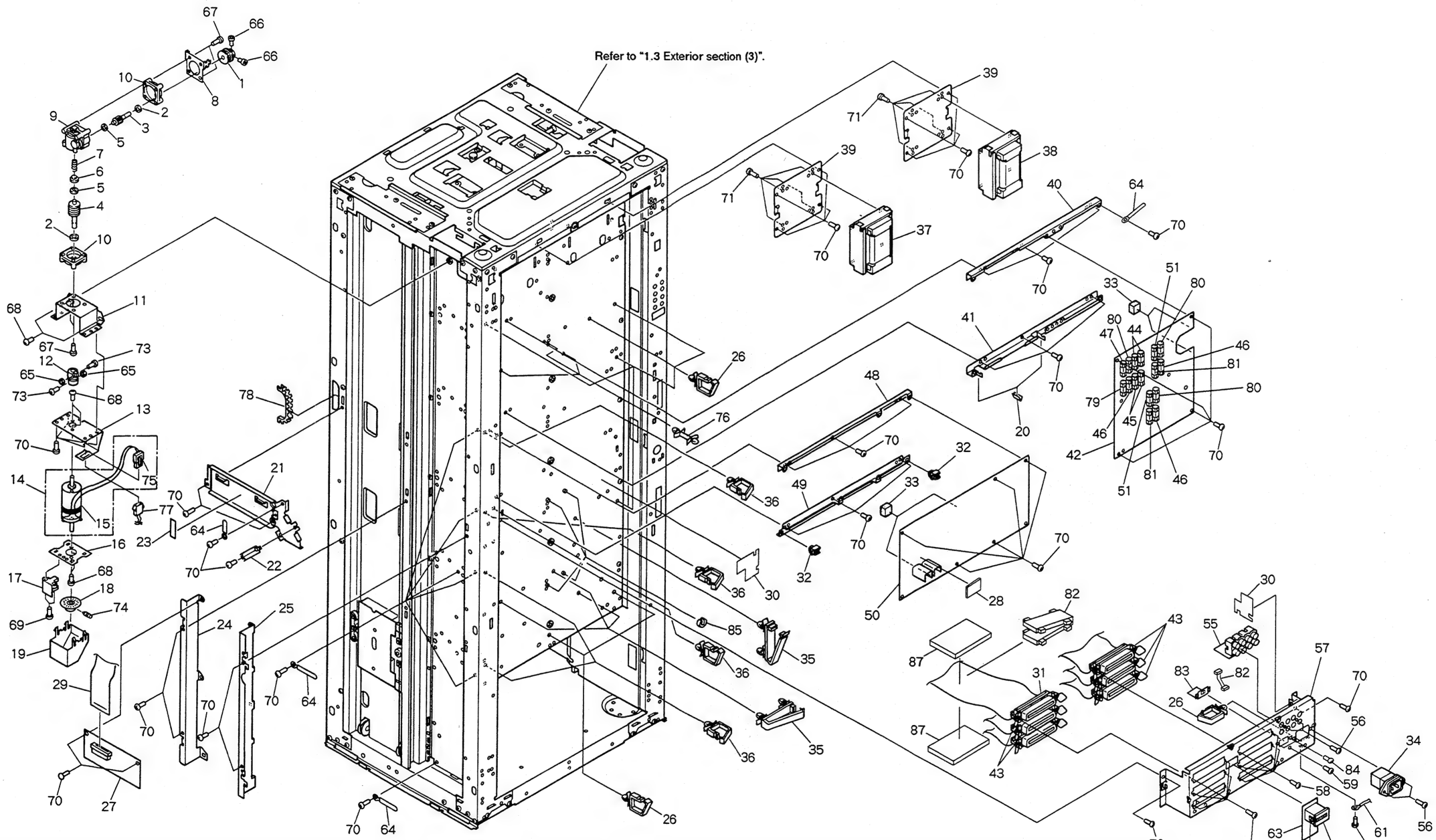
1. EXPLODED VIEWS AND PACKING

1.1 EXTERIOR SECTION (1)

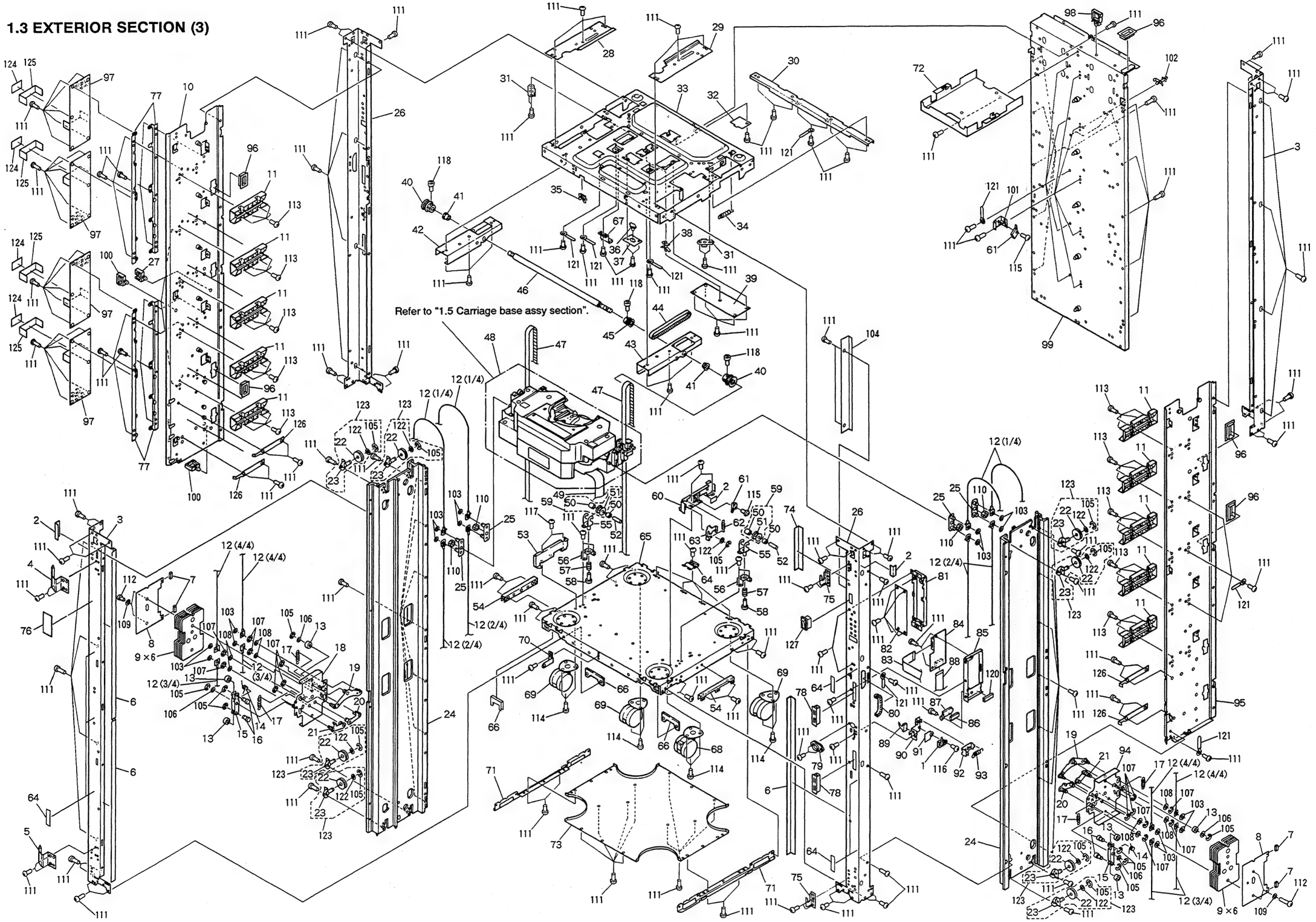
NOTE: Screws adjacent to ▼ mark on the product are used for disassembly.



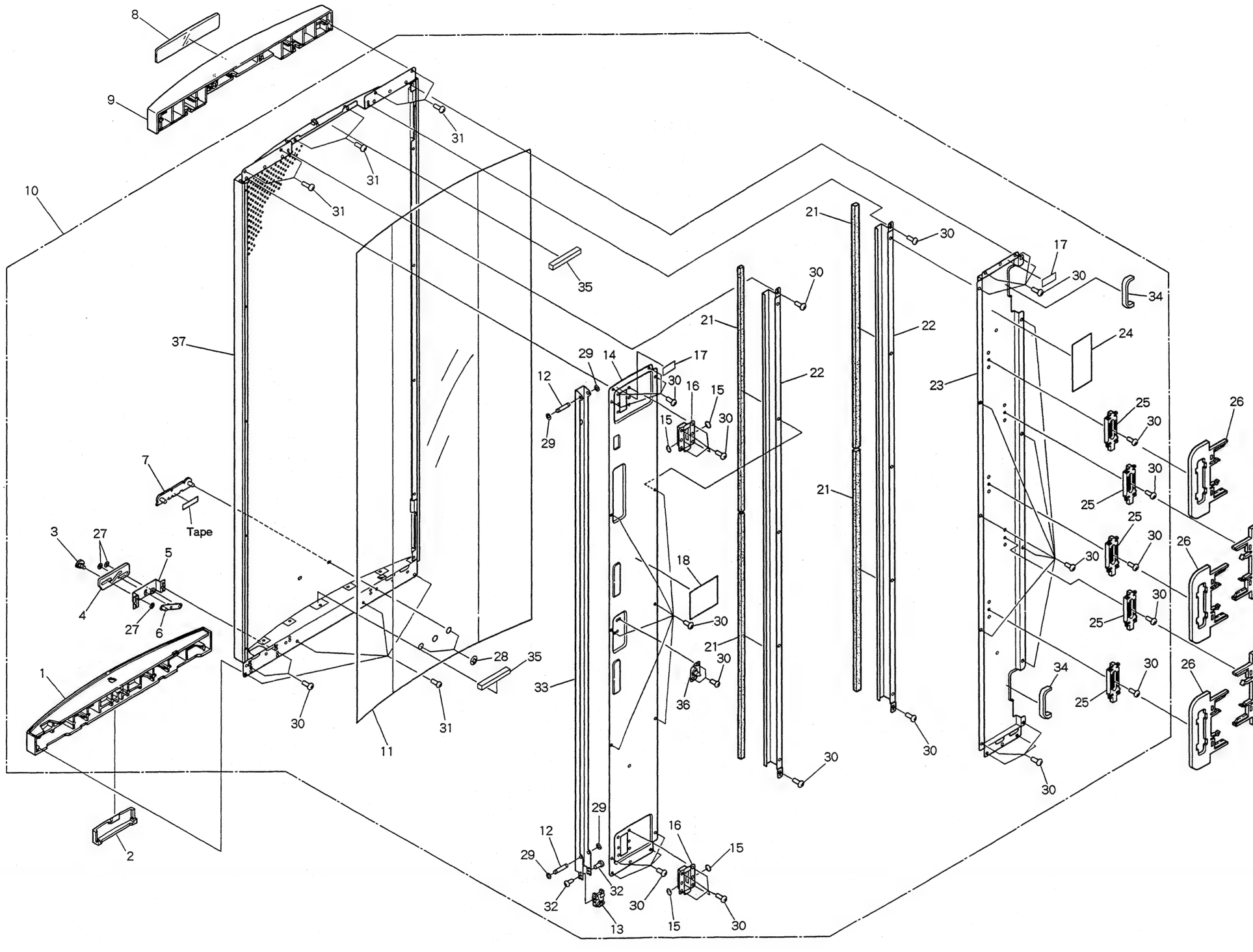
1.2 EXTERIOR SECTION (2)



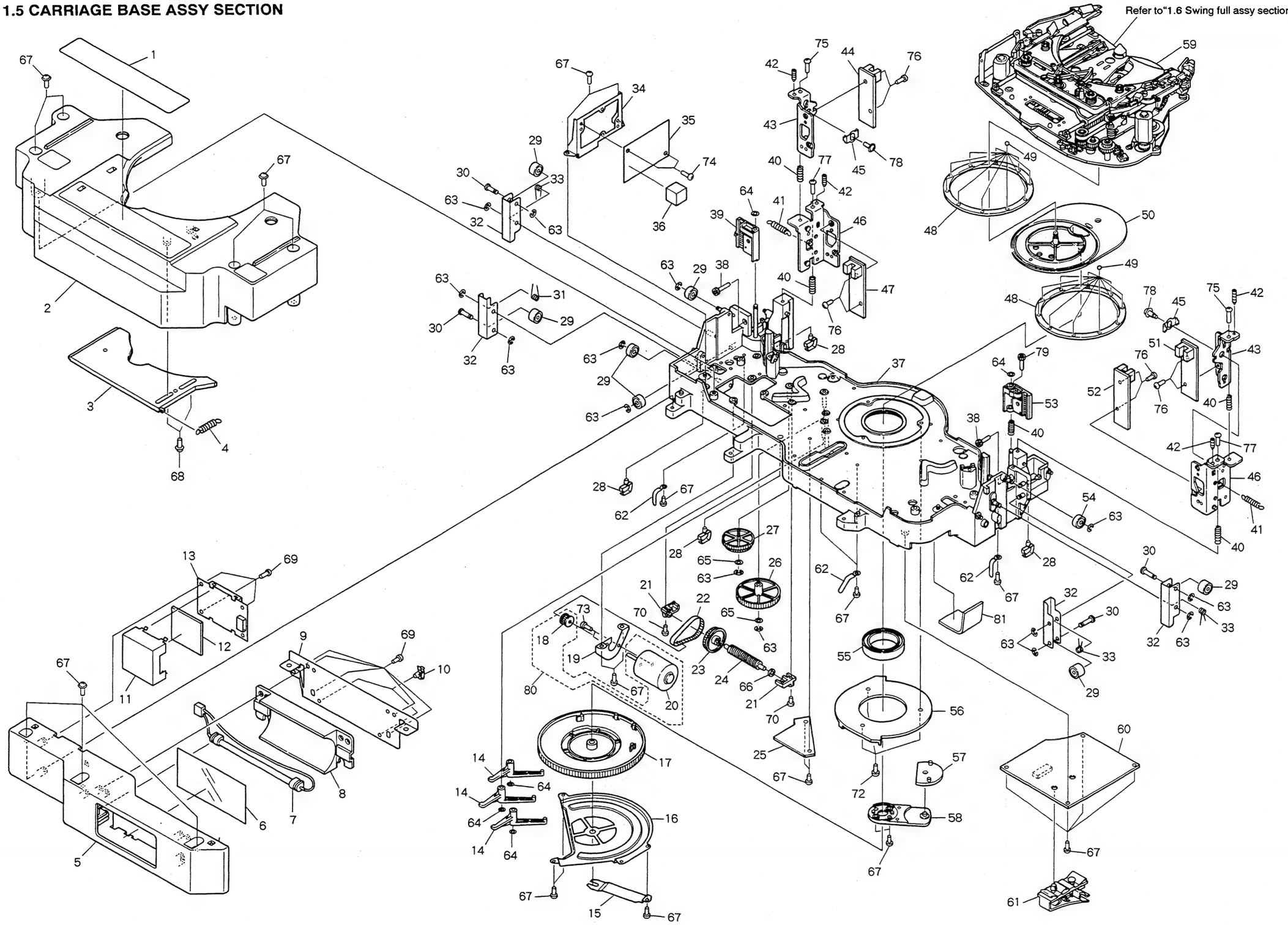
1.3 EXTERIOR SECTION (3)



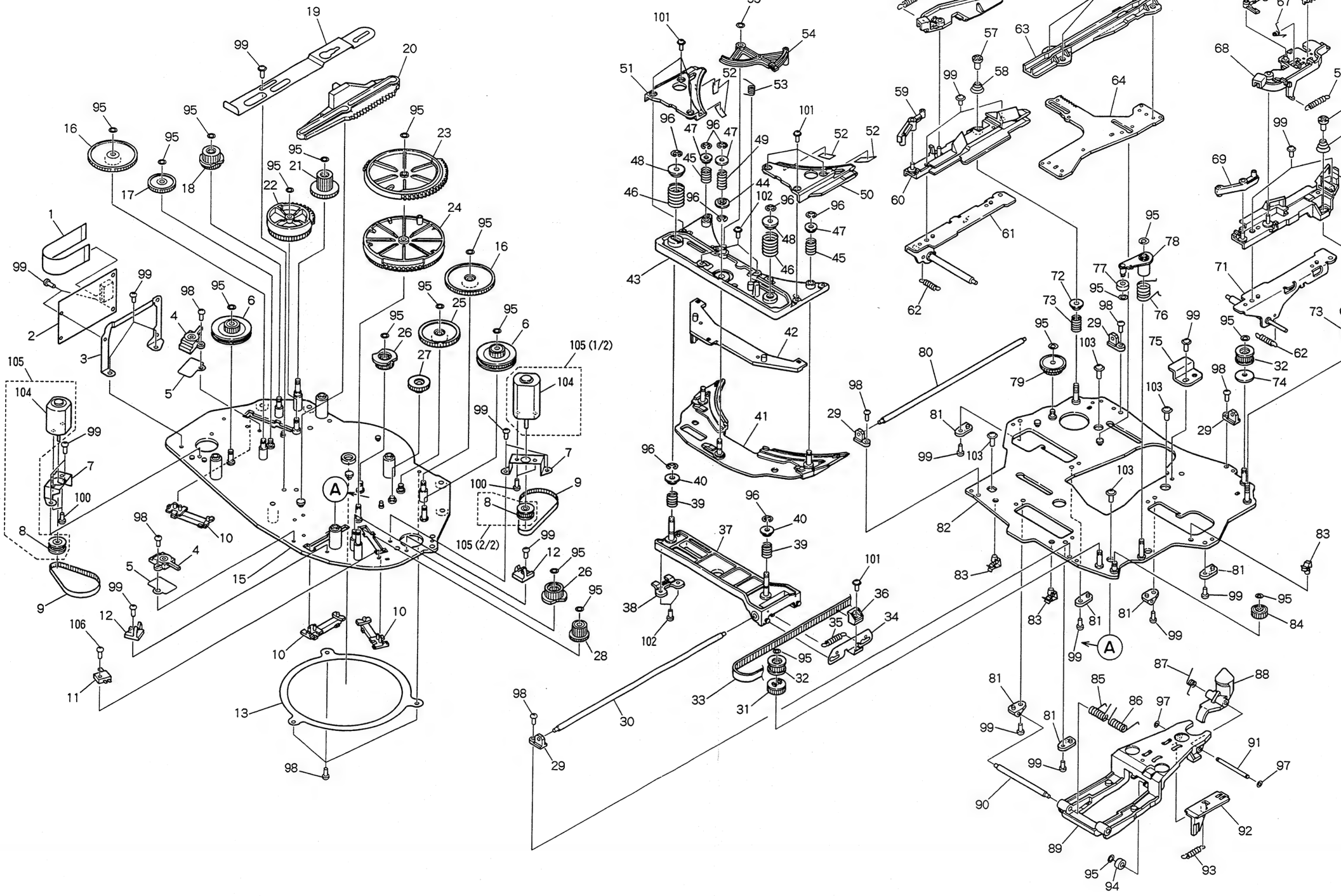
1.4 FRONT DOOR SECTION



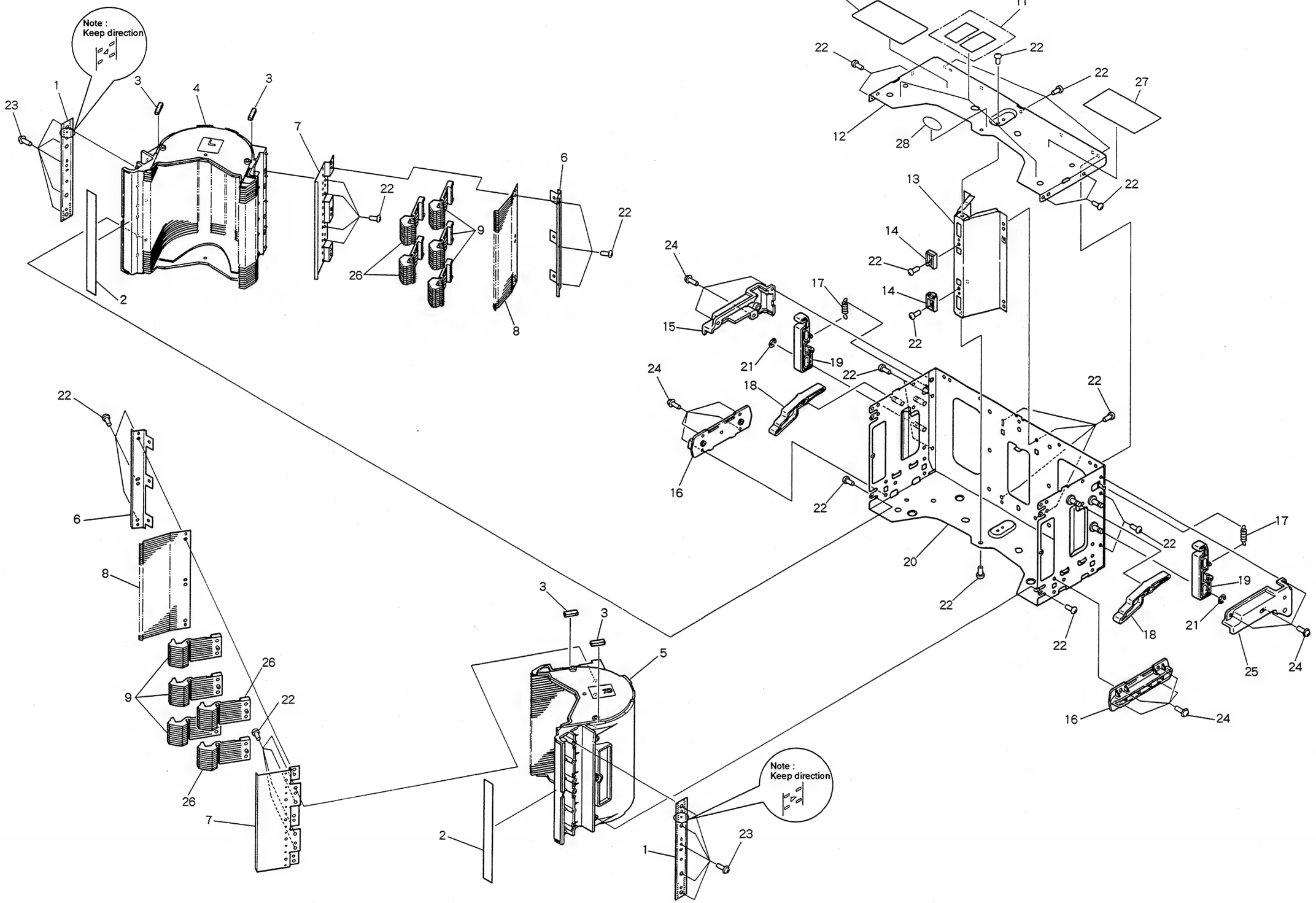
1.5 CARRIAGE BASE ASSY SECTION



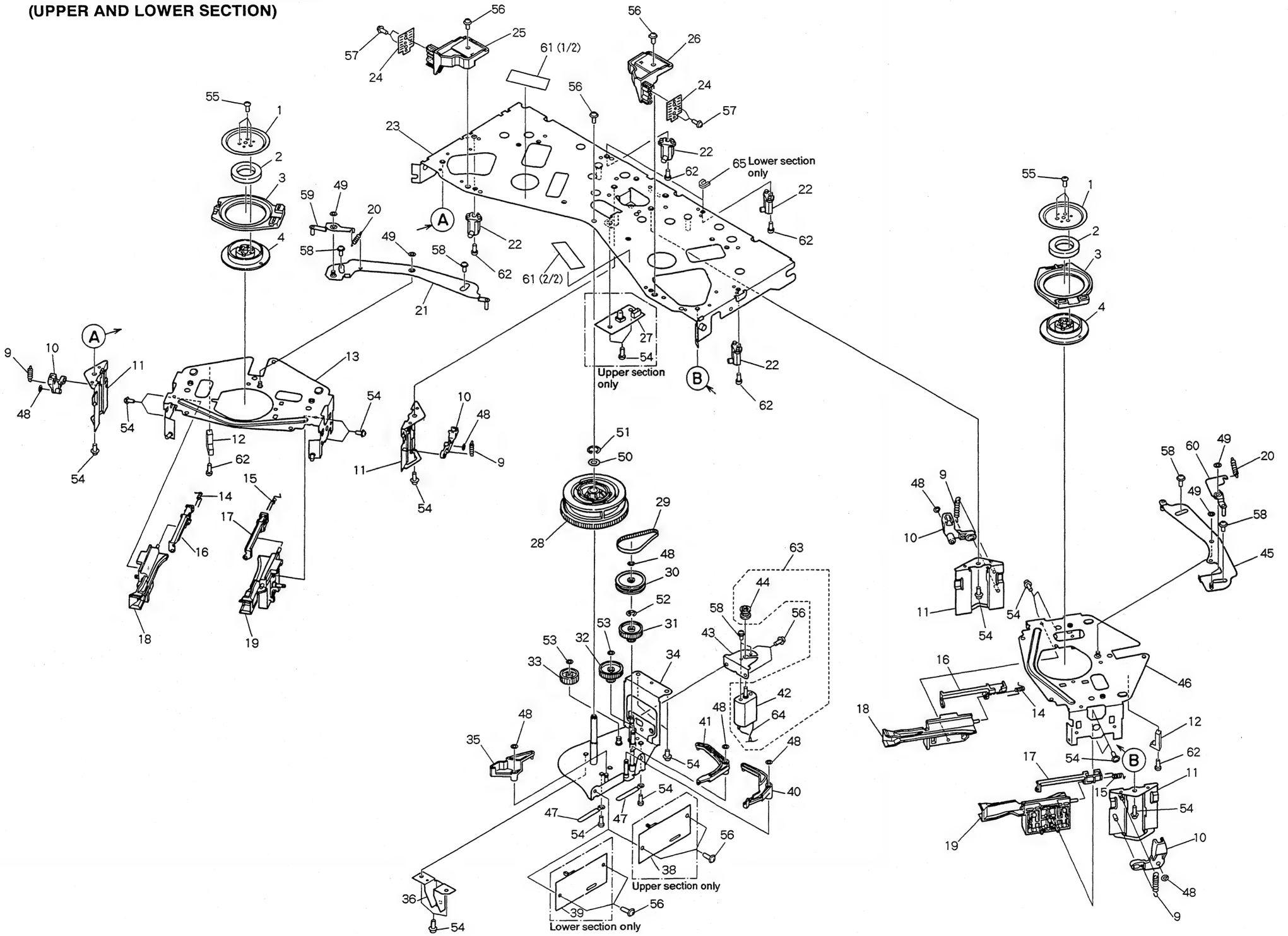
1.6 SWING FULL ASSY SECTION



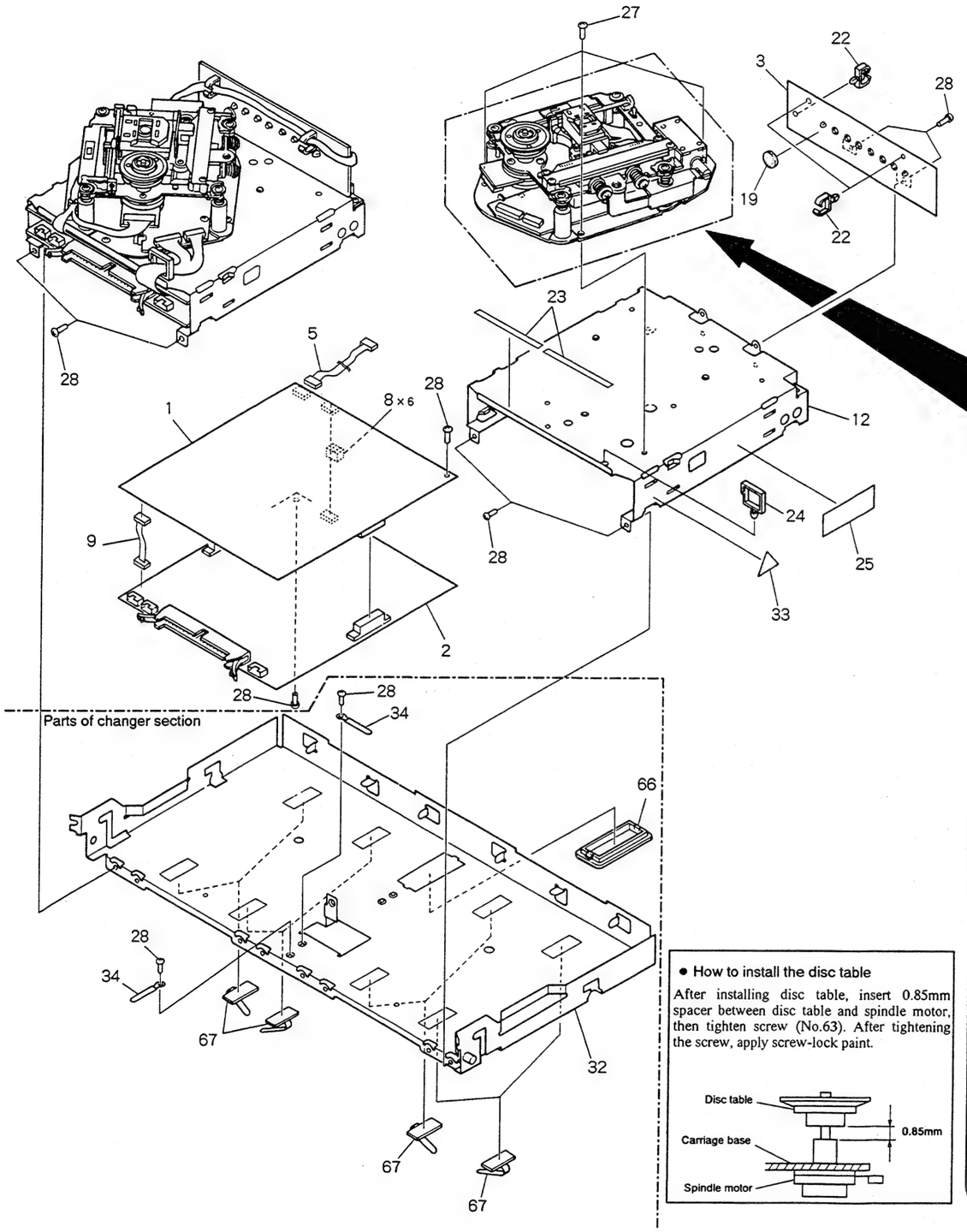
1.7 DISC STOCKER ASSY SECTION



1.8 ROM CLAMPER FULL ASSY SECTION (UPPER AND LOWER SECTION)



1.9 CD–ROM PLAYER UNIT

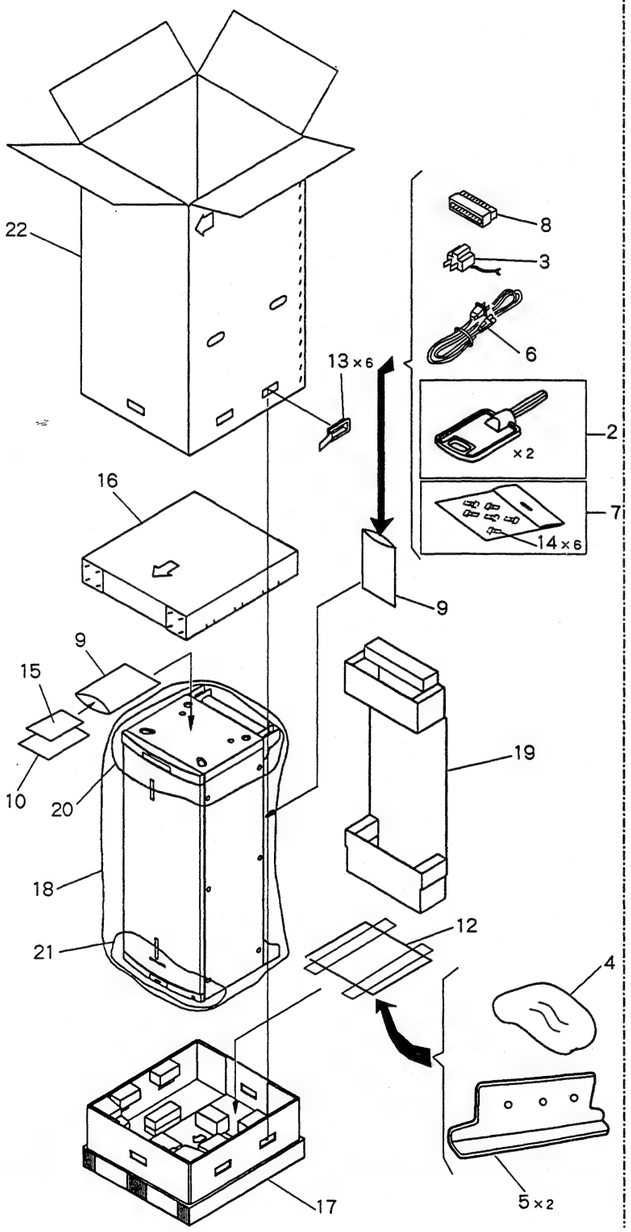


- How to install the disc table

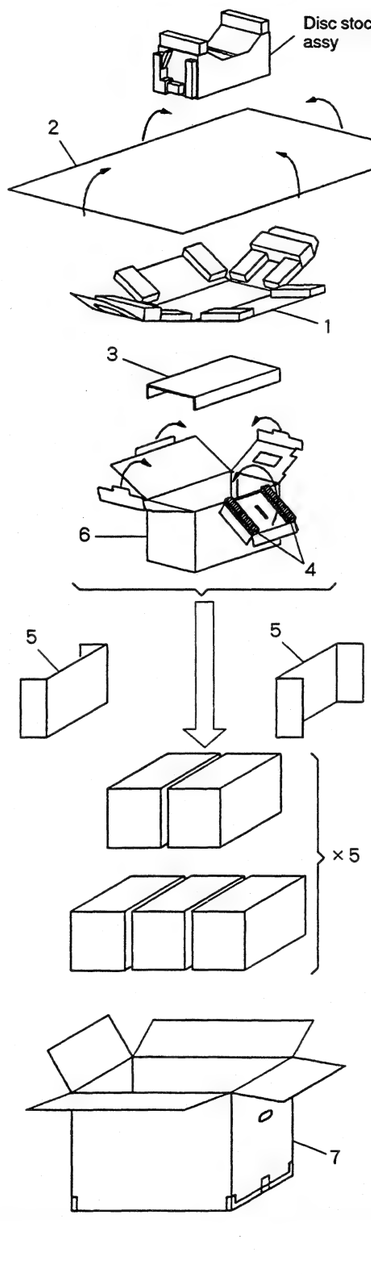
After installing disc table, insert 0.85mm spacer between disc table and spindle motor, then tighten screw (No.63). After tightening the screw, apply screw-lock paint.

1.10 PACKING

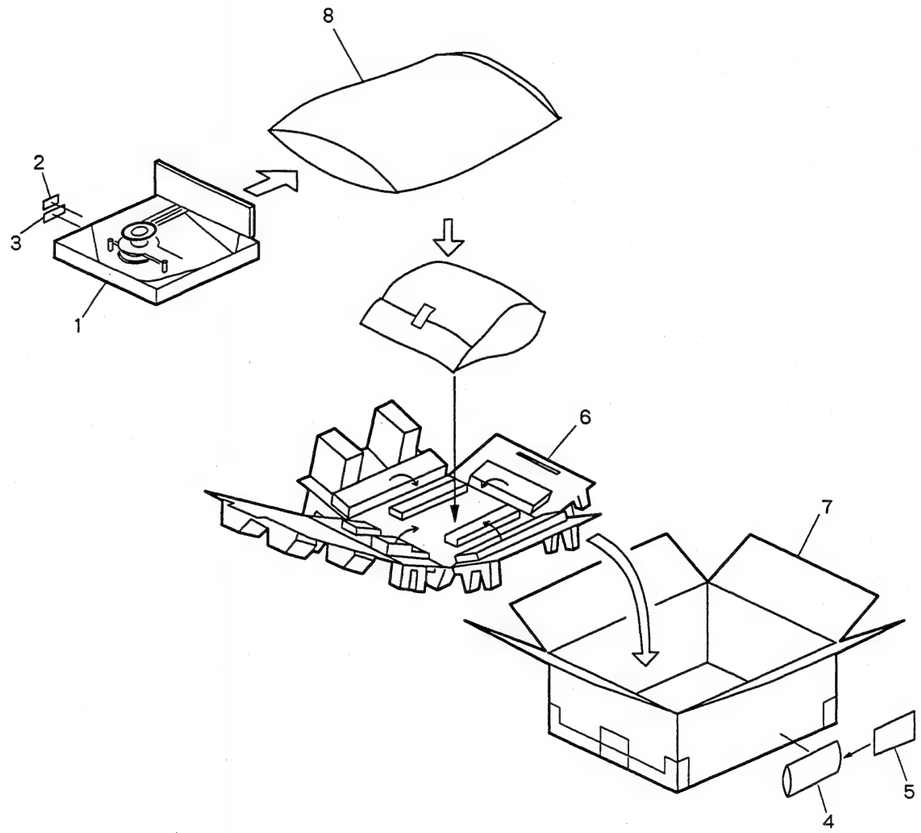
(1) CD-ROM CHANGER SECTION



(2) ROM DISC STOCKER ASSY SECTION

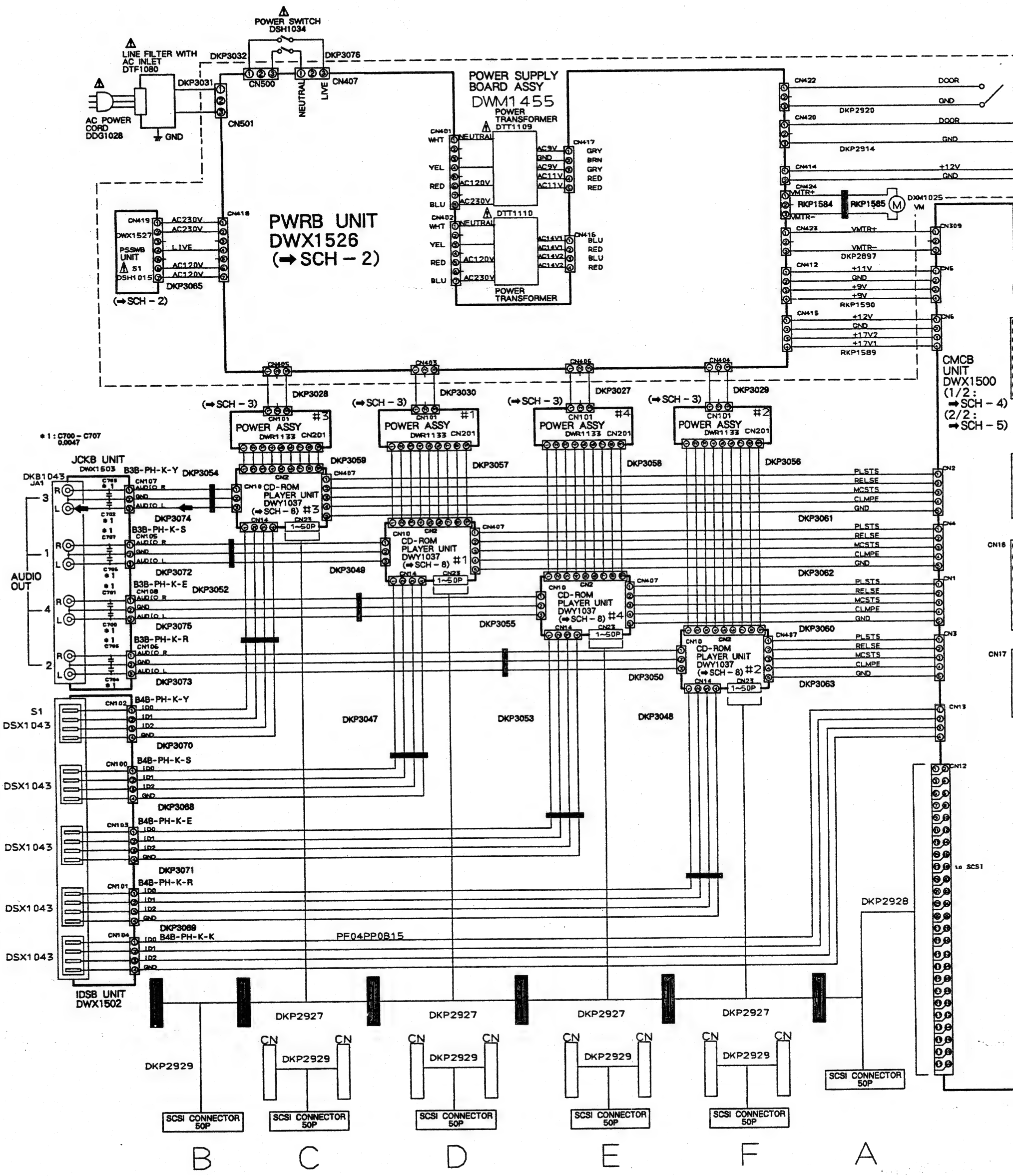


1.11 DR–D504X



2. SCHEMATIC DIAGRAM

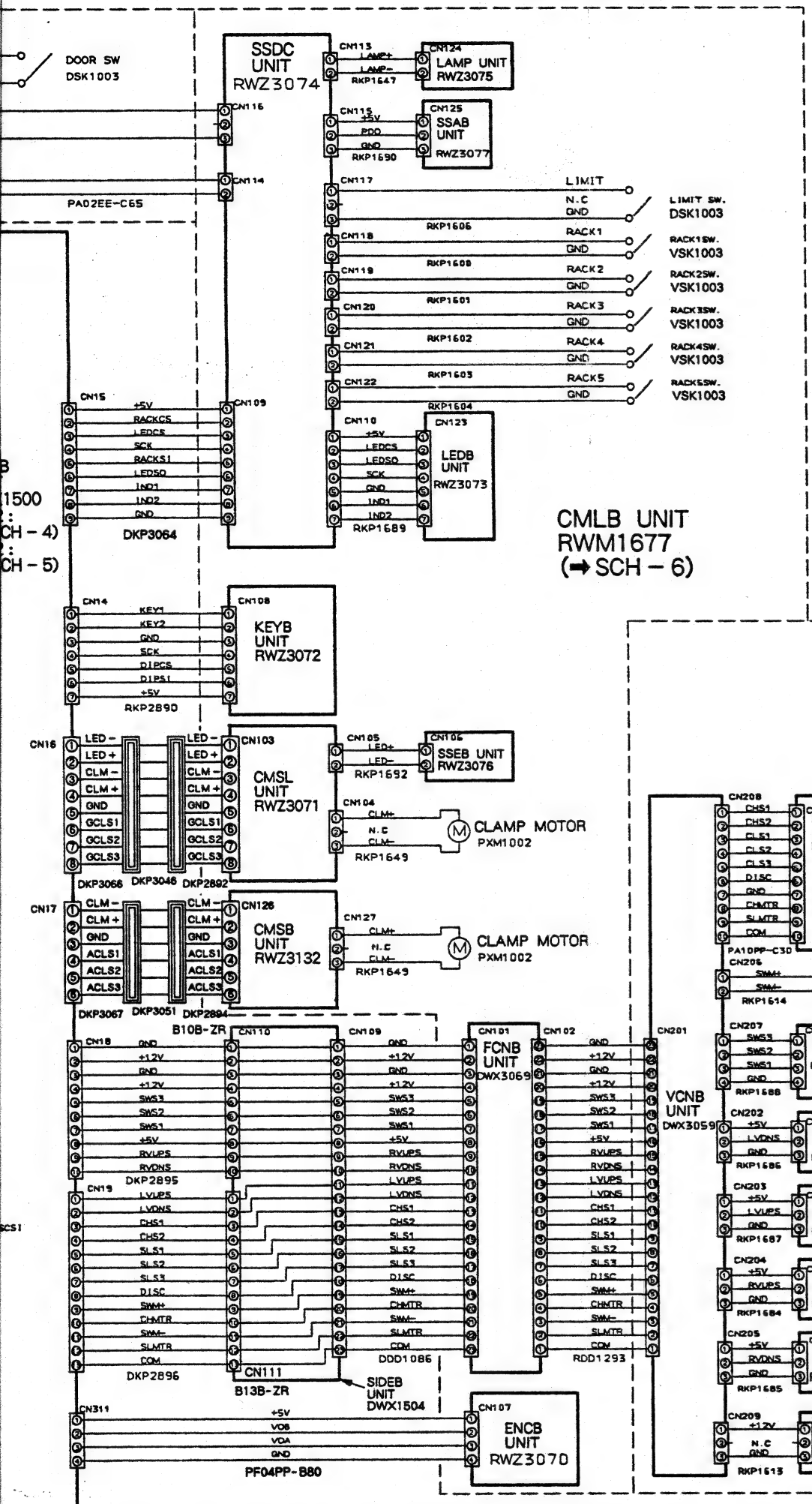
2.1 OVERALL WIRING DIAGRAM, IDSB, JCKB AND SIDEB UNITS



SCH-1 OVERALL WIRING DIAGRAM, IDSB UNIT, JCKB UNIT, SIDEB UNIT

SIGNAL ROUTE
➡ : AUDIO SIGNAL

SCH – 1



Note : For the PCB diagrams of IDSB, JCKB and SIDEB UNITS , refer to pages 2-39 and 40.

● CONNECTOR ASSY
DKX1015 (PF04PP-B80 + RKP1584)
DKX1027 (DKP3046 + DKP3047 + DKP3048 + DKP3049 + DKP3050 + DKP3056 + DKP3057 + DKP3062 + DKP3063)
DKX1028 (DKP3051 + DKP3052 + DKP3053 + DKP3054 + DKP3055 + DKP3058 + DKP3059 + DKP3060 + DKP3061)
DKX1032 (DKP3032 + DKP3076)
RKX1025 (RKP1589 + RKP1590)

NOTE FOR SCHEMATIC DIAGRAMS (Type 4A)

1. When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".

2. Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.

3. RESISTORS:
Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
Tolerance:(F):±1%, (G):±2%, (K):±10%, (M):±20% or ±5% unless otherwise noted.

4. CAPACITORS:
Unit : p:pF or μF unless otherwise noted.
Ratings : capacitor (μF) /voltage (V) unless otherwise noted.
Rated voltage : 50V except for electrolytic capacitors.

5. COILS:
Unit : m:mH or μH unless otherwise noted.

6. VOLTAGE AND CURRENT:
▭ or ←V :
DC voltage (V) in PLAY mode unless otherwise noted.
⇦mA or ←mA :
DC current in PLAY mode unless otherwise noted.
Value in ( ) is DC current in STOP mode.

7. OTHERS:
- ⊘ or ⊘ : Adjusting point.
- ◀ : Measurement point.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.

8. SCH – □ ON THE SCHEMATIC DIAGRAM:
- SCH– □ Indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)

9. SWITCHES (Underline indicates switch position):
CHANGER SECTION
POWER SWITCH : POWER ON – OFF
Lever switch : LIMIT SW
Lever switch : DOOR SW
Lever switch : RACK 1 SW
Lever switch : RACK 2 SW
Lever switch : RACK 3 SW
Lever switch : RACK 4 SW
Lever switch : RACK 5 SW
Lever switch : CHACK SW 1, 2
Lever switch : SLIDE SW 1, 2
Push switch : SLIDE SW 3
Push switch : DISC SW
PSSWB UNIT
S1 : VOLTAGE SELECTOR 120V – 230V
CMSL UNIT
S611 : CLAMP SW 1
S612 : CLAMP SW 2
S613 : CLAMP SW 3
KEYB UNIT
S701 : DIP SW 1 – 4 ON – OFF
S702 : ADDRESS SW 0 – 9
S703: (+)
S704 : (–)
S705 : S1(100)
S706 : S2(10)
S707: S3(1)
S708 : S4(INPUT)
S709 : ON/OFF
S710 : (+)
CMSB UNIT
S614 : CLAMP SW 1
S615 : CLAMP SW 2
S616 : CLAMP SW 3
SWSB UNIT
S501 : SWING SW 1
S502 : SWING SW 2
S503 : SWING SW 3
ROMB UNIT
S1 :

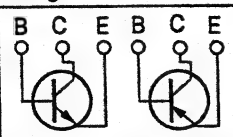
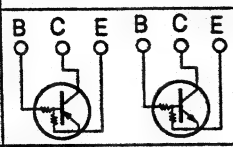
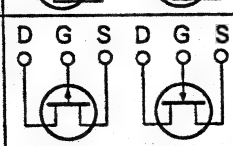
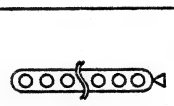
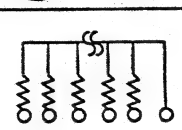
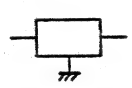
OVERALL WIRING DIAGRAM, IDSB UNIT, JCKB UNIT, SIDEB UNIT

SCH-1

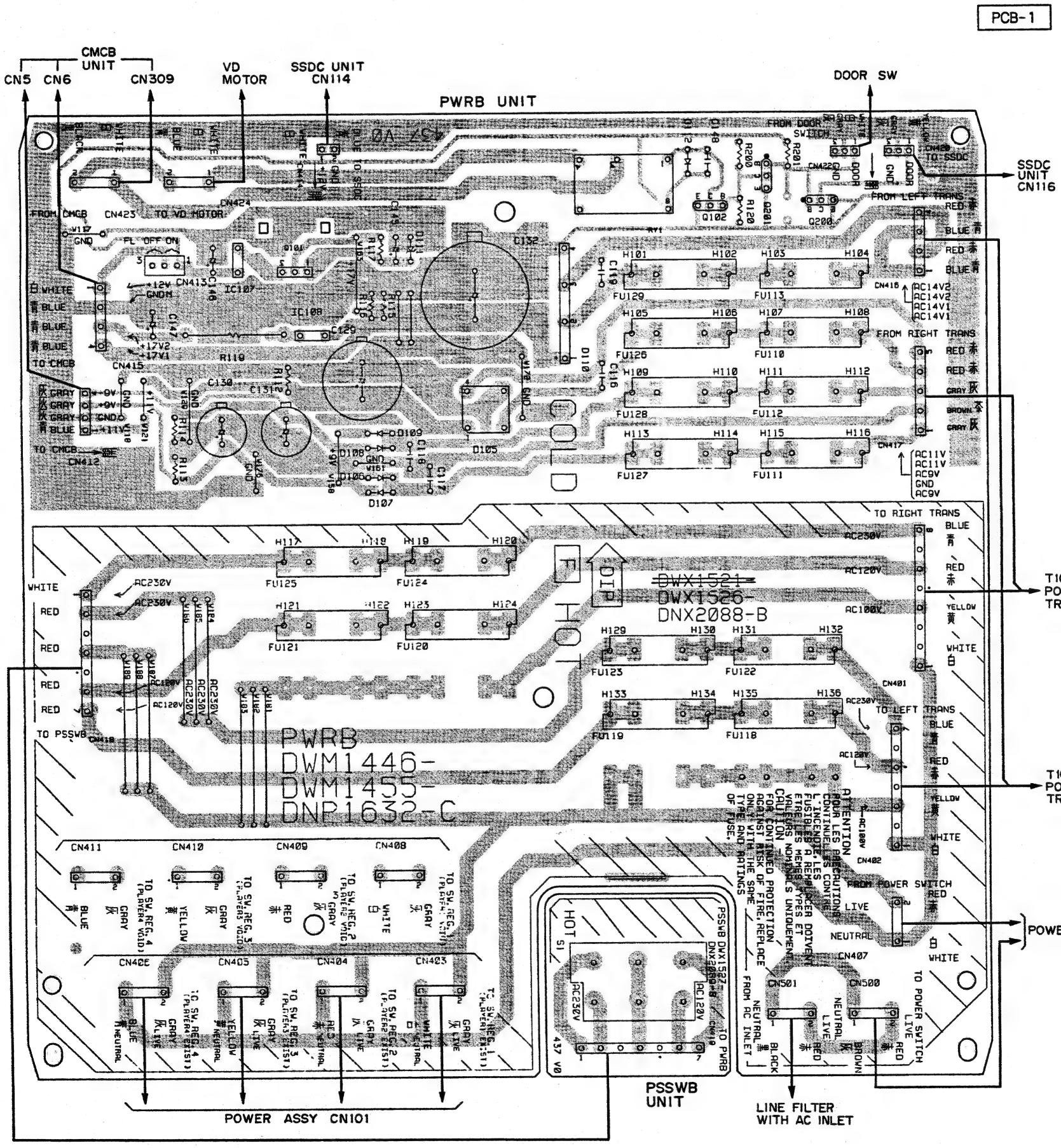
2.2 PWRB AND PSSWB UNITS

NOTE FOR PCB DIAGRAMS:

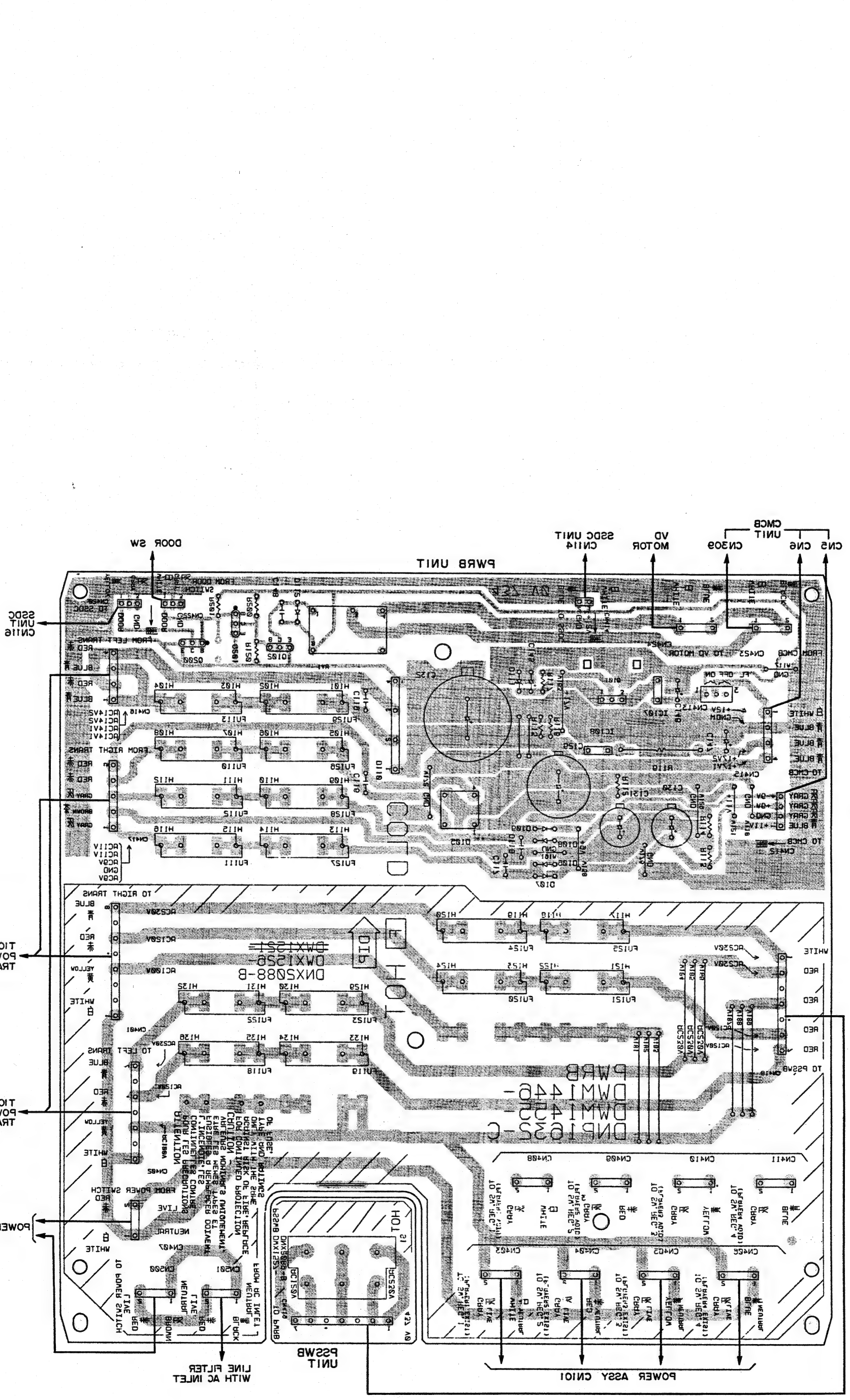
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

PCB-1

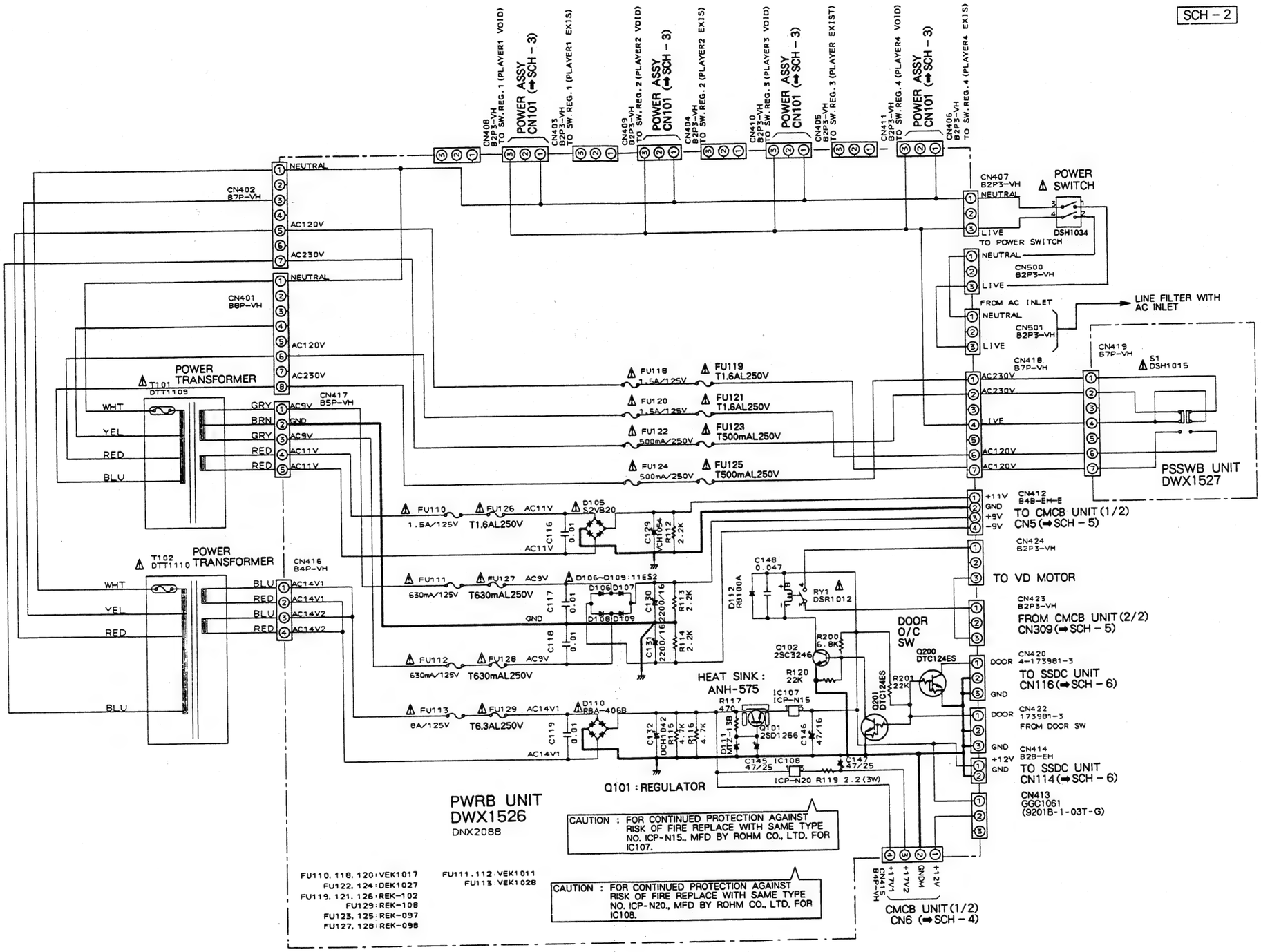


● This diagram is viewed from the mounted parts side.



● This diagram is viewed from the foil side.

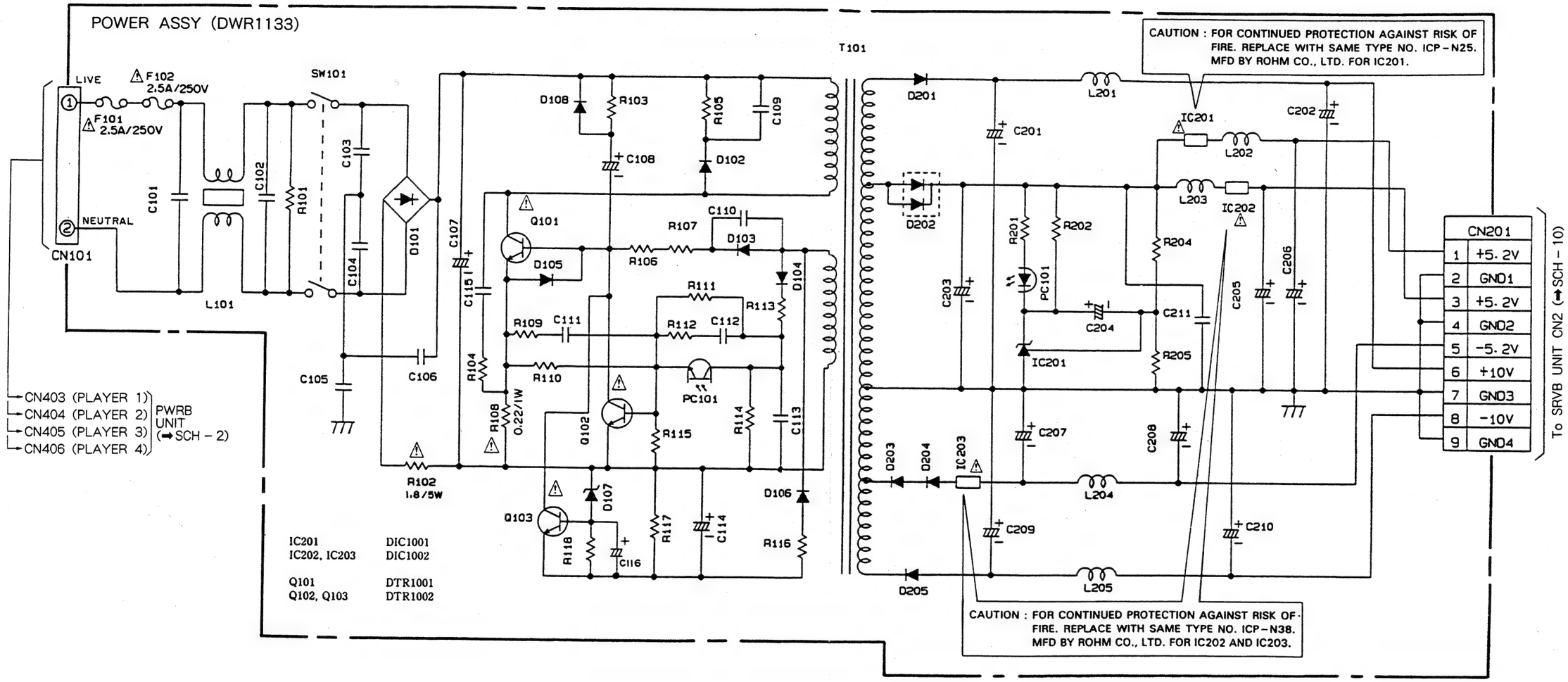
SCH – 2


CN408 B2P3-VH TO SW.REG.1 (PLAYER1 VOID)
POWER ASSY CN101 (➡SCH – 3)
CN403 B2P3-VH TO SW.REG.1 (PLAYER1 EXIS)
CN409 B2P3-VH TO SW.REG.2 (PLAYER2 VOID)
POWER ASSY CN101 (➡SCH – 3)
CN404 B2P3-VH TO SW.REG.2 (PLAYER2 EXIS)
CN410 B2P3-VH TO SW.REG.3 (PLAYER3 VOID)
POWER ASSY CN101 (➡SCH – 3)
CN405 B2P3-VH TO SW.REG.3 (PLAYER EXIST)
CN411 B2P3-VH TO SW.REG.4 (PLAYER4 VOID)
POWER ASSY CN101 (➡SCH – 3)
CN406 B2P3-VH TO SW.REG.4 (PLAYER4 EXIS)
CN402 8P-VH
NEUTRAL
AC120V
AC230V
CN401 8BP-VH
POWER TRANSFORMER T101 DTT1109
WHT
YEL
RED
BLU
CN417 B5P-VH
GRY AC9V
BRN GND
GRY AC9V
RED AC11V
RED AC11V
POWER TRANSFORMER T102 DTT1110
CN416 B4P-VH
BLU AC14V1
RED AC14V1
BLU AC14V2
RED AC14V2
CN407 B2P3-VH
POWER SWITCH
LIVE
TO POWER SWITCH
DSH1034
CN500 B2P3-VH
FROM AC INLET
CN501 B2P3-VH
LINE FILTER WITH AC INLET
CN418 8P-VH
CN419 8P-VH
S1 DSH1015
PSSWB UNIT DWX1527
FU118 1.5A/125V
FU119 T1.6AL250V
FU120 1.5A/125V
FU121 T1.6AL250V
FU122 500mA/250V
FU123 T500mAL250V
FU124 500mA/250V
FU125 T500mAL250V
FU110 1.5A/125V
FU126 AC11V T1.6AL250V
FU111 630mA/125V
FU127 AC9V T630mAL250V
FU112 630mA/125V
FU128 AC9V T630mAL250V
FU113 8A/125V
FU129 AC14V1 T6.3AL250V
D105 S2VB20
D106–D109 11ES2
D110 RBA-406B
C116 0.01
C117 0.01
C118 0.01
C119 0.01
C129 DCH1654
C130 2200/16
C132 DCH1042
C133 2200/16
R112 2.2K
R113 2.2K
R114 2.2K
R115 4.7K
R116 4.7K
CN412 B4B-EH-E
+11V GND +9V -9V
TO CMCB UNIT (1/2) CN5 (➡SCH – 5)
CN424 B2P3-VH
TO VD MOTOR
CN423 B2P3-VH
FROM CMCB UNIT (2/2) CN309 (➡SCH – 5)
C148 0.047
D112 RB100A
RV1 DSR1012
DOOR O/C SW
Q102 2SC3246
R200 6.8K
Q200 DTC124ES
R201 22K
Q201 DTC124ES
HEAT SINK : ANH-575
R120 22K
IC107 ICP-N15
R117 470
Q101 2SD1266
D111 MTZ-13B
C146 47/16
C145 47/25
IC108
C147 47/25
ICP-N20 R119 2.2(3W)
Q101 : REGULATOR
CN420 4-173981-3
DOOR
TO SSDC UNIT CN116 (➡SCH – 6)
CN422 173981-3
DOOR
FROM DOOR SW
CN414 B2B-EH
GND +12V GND
TO SSDC UNIT CN114 (➡SCH – 6)
CN413 GGC1061 (9201B-1-03T-G)
CN415 B4P-VH
+17V1 +17V2 GNDM +12V
CMCB UNIT (1/2) CN6 (➡SCH – 4)
PWRB UNIT DWX1526
DNX2088
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE REPLACE WITH SAME TYPE NO. ICP-N15., MFD BY ROHM CO., LTD. FOR IC107.
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE REPLACE WITH SAME TYPE NO. ICP-N20., MFD BY ROHM CO., LTD. FOR IC108.
FU110, 118, 120 : VEK1017
FU122, 124 : DEK1027
FU119, 121, 126 : REK-102
FU129 : REK-108
FU123, 125 : REK-097
FU127, 128 : REK-098
FU111, 112 : VEK1011
FU113 : VEK1028

2.3 POWER ASSY

SCH - 3

POWER ASSY (DWR1133)



RESISTORS: 1/6W UNLESS OTHERWISE NOTED

ELECT. CAPACITORS ⧺ : 50V UNLESS OTHERWISE NOTED

OTHER CAPACITORS ⫫ : 100V UNLESS OTHERWISE NOTED

2.4 CMCB UNIT (1/2)

SCH-4 CMCB UNIT (1/2)

CMCB UNIT (1/2)
DWX1500

SCH-4

KEYB UNIT
CN108 (⇒SCH-6)

SSDC UNIT
CN109
(⇒SCH-6)

CMCB UNIT
VMLOCK (2/2) (⇒SCH-5)

CMCB UNIT
(2/2)
(⇒SCH-5)

IDSB UNIT
CN104
(⇒SCH-1)

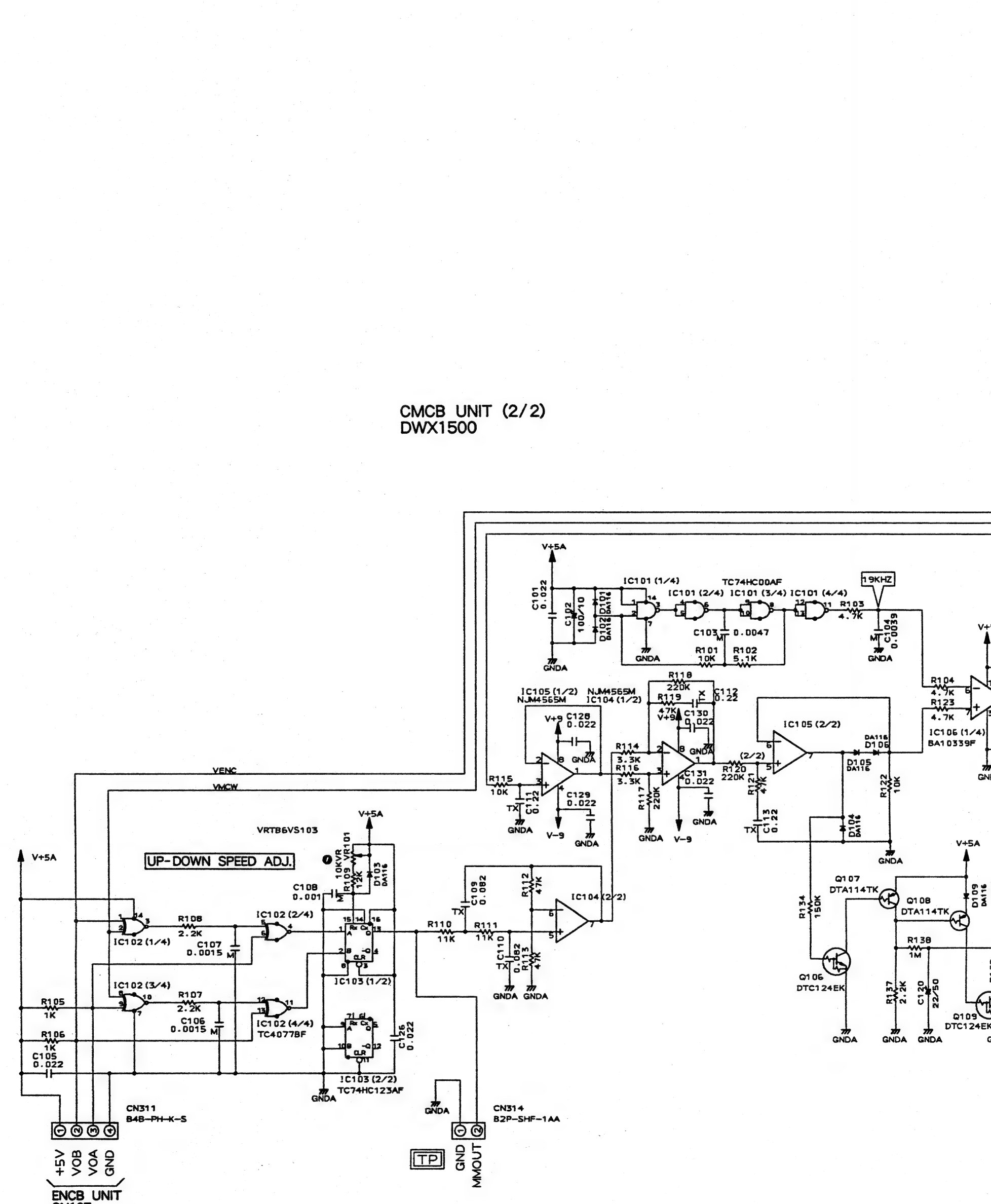
IC523 : TC74HC244AF

CMCB UNIT
(1/2)

SCH-4

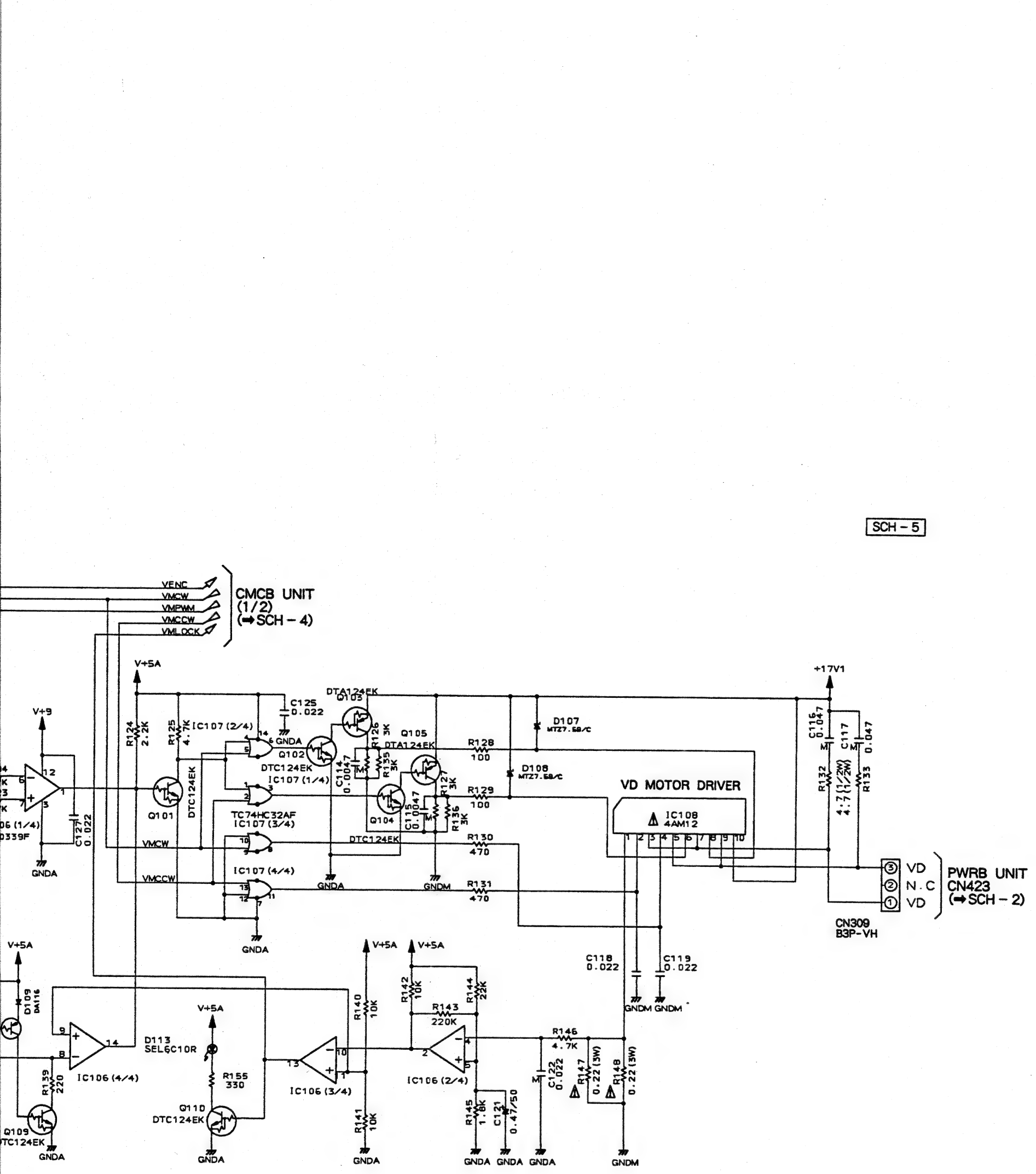
2.5 CMCB UNIT (2/2)

CMCB UNIT (2/2)
DWX1500



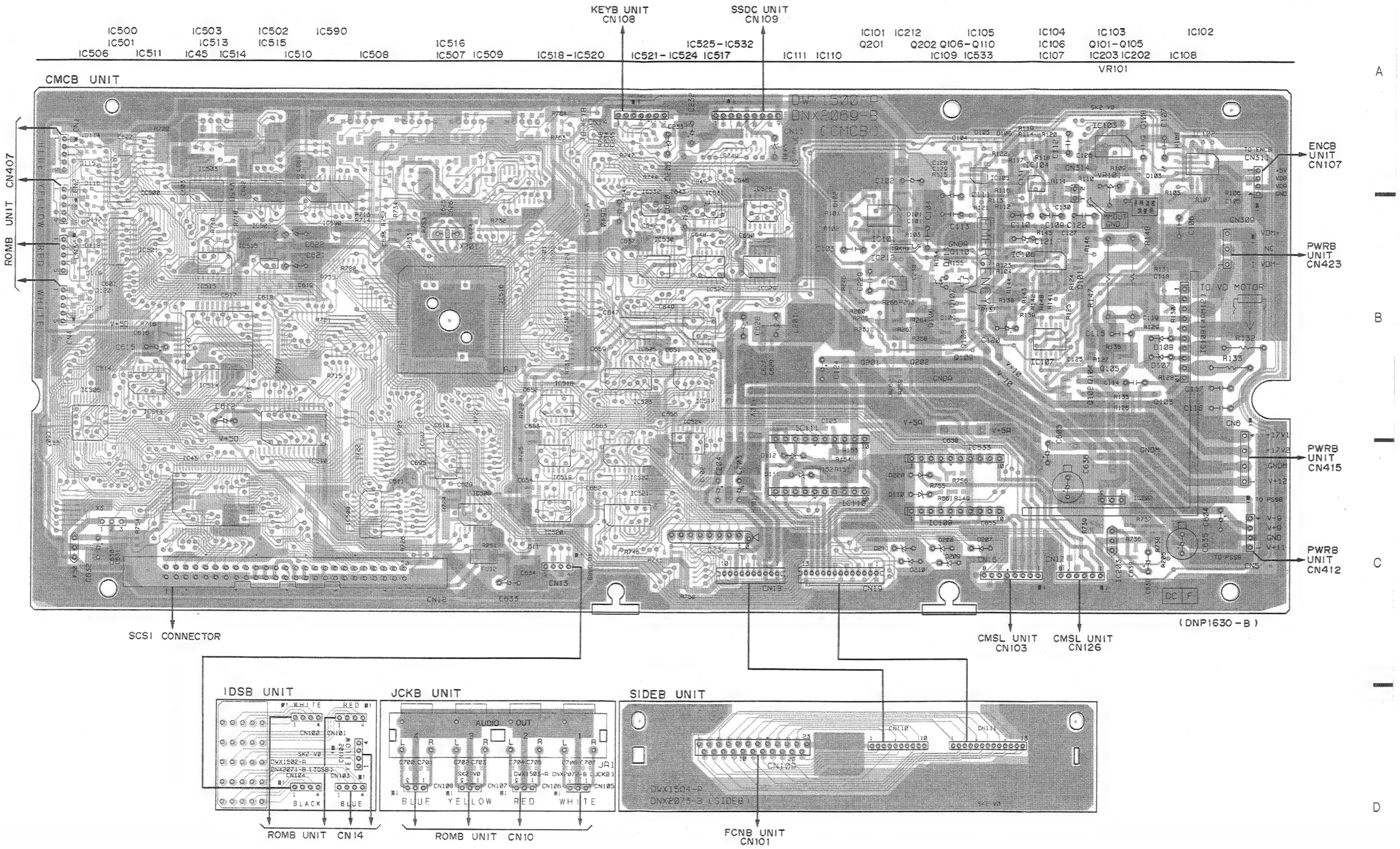
SCH-5 CMCB UNIT (2/2)

SCH – 5



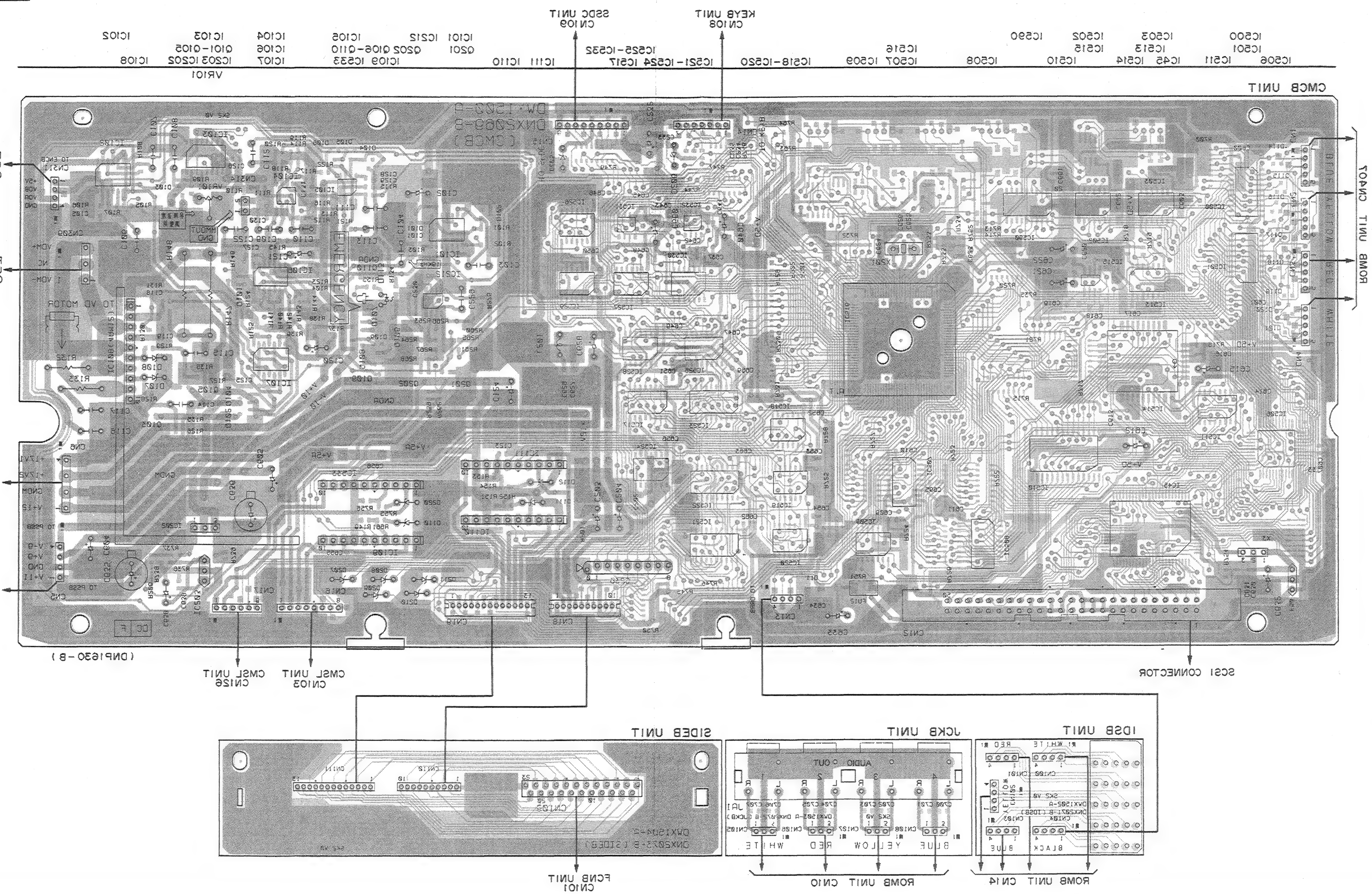
CMCB UNIT (2/2)

SCH-5



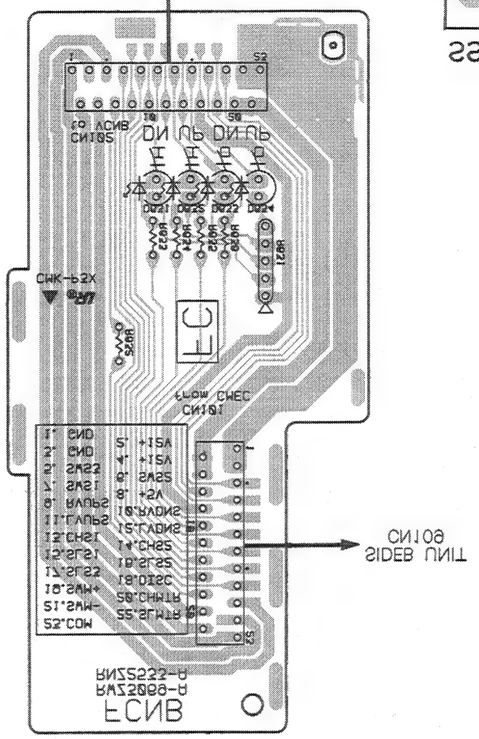
- This diagram is viewed from the pink colored foil side.
- This PCB is double sided.

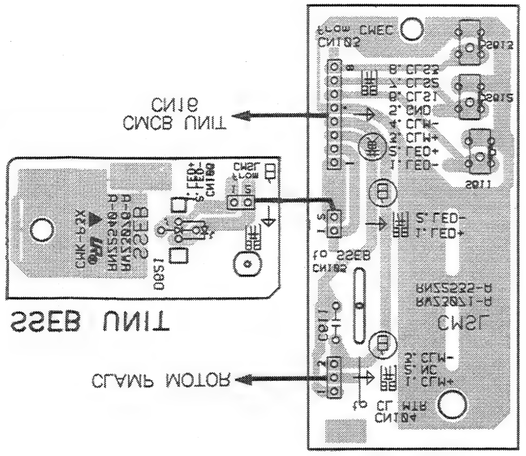
PCB-2

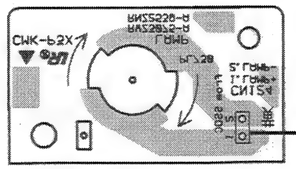


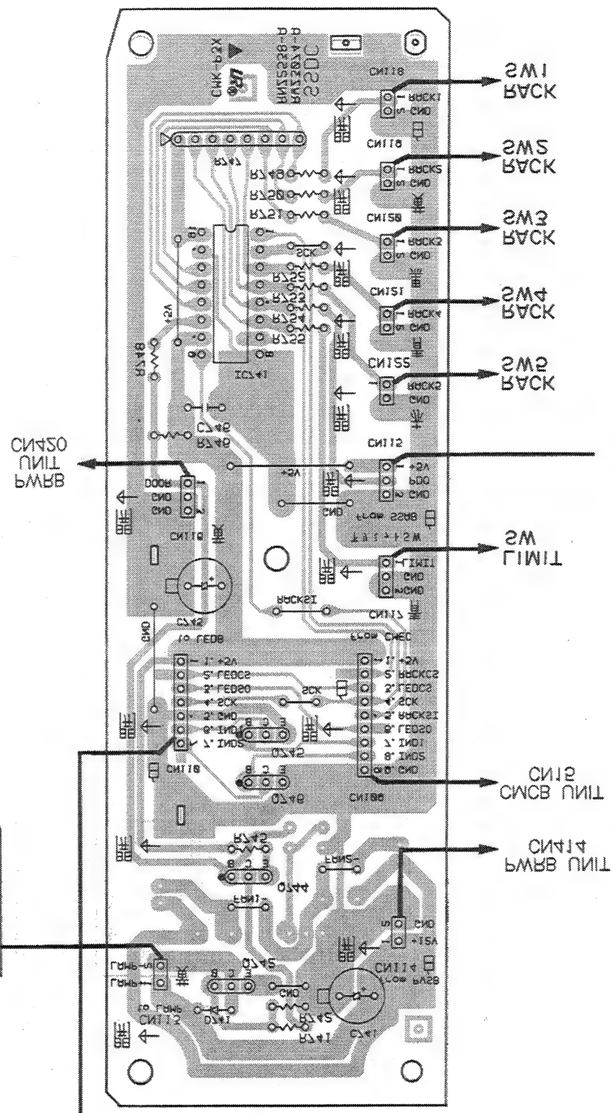
- This diagram is viewed from the gray colored foil side.
- This PCB is double sided.

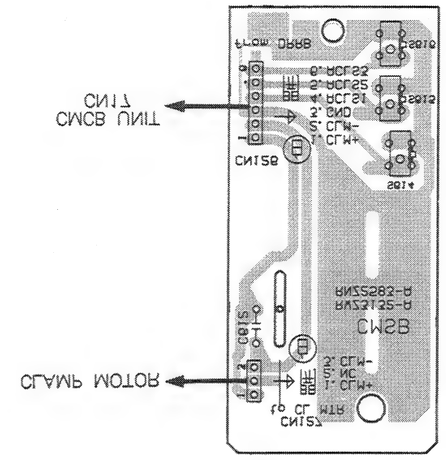
● This diagram is viewed from the foil side.

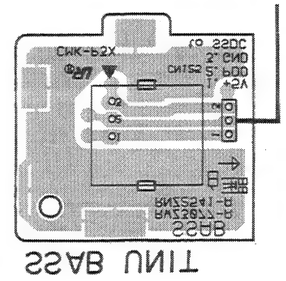


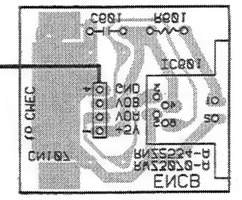


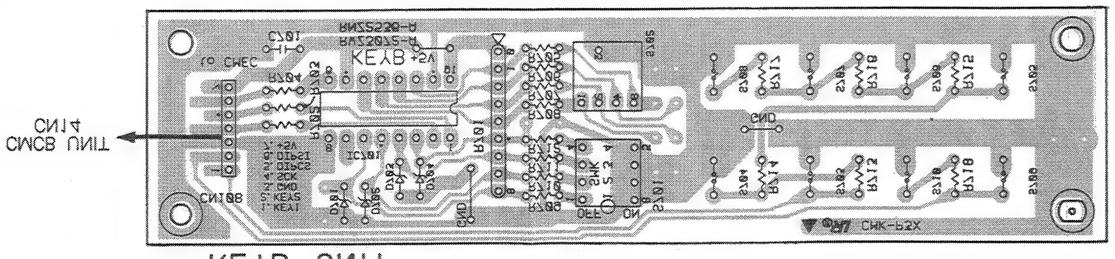


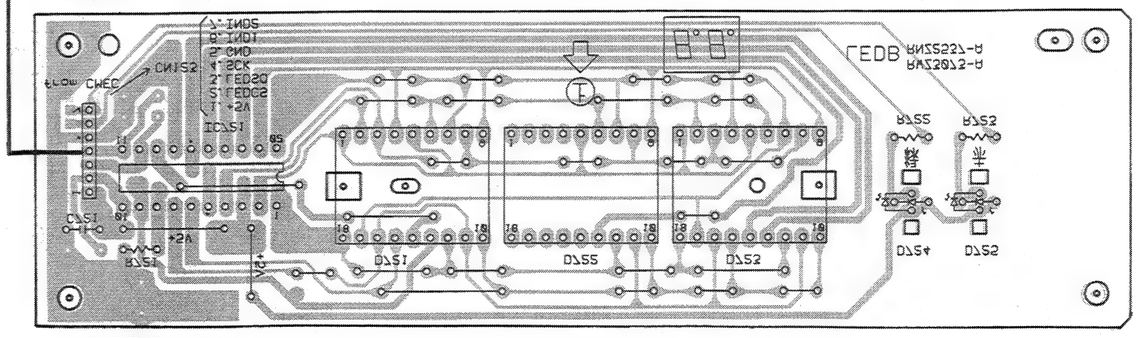










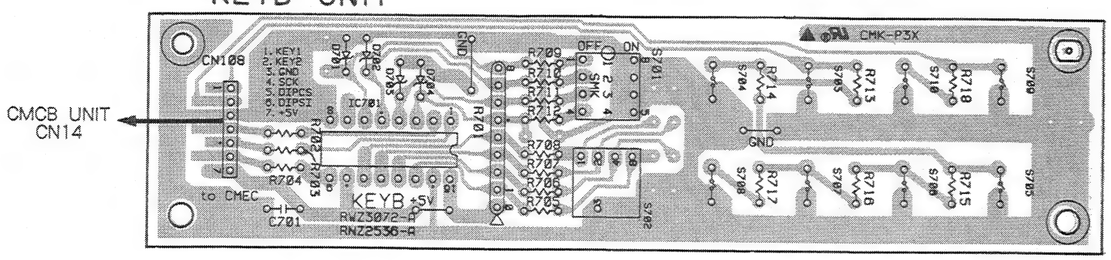


S.e FCNB, ENCB, CMSL, KEYB, FEDB, SSDC, LAMP, SSEB, SSAB AND CMSB UNITS

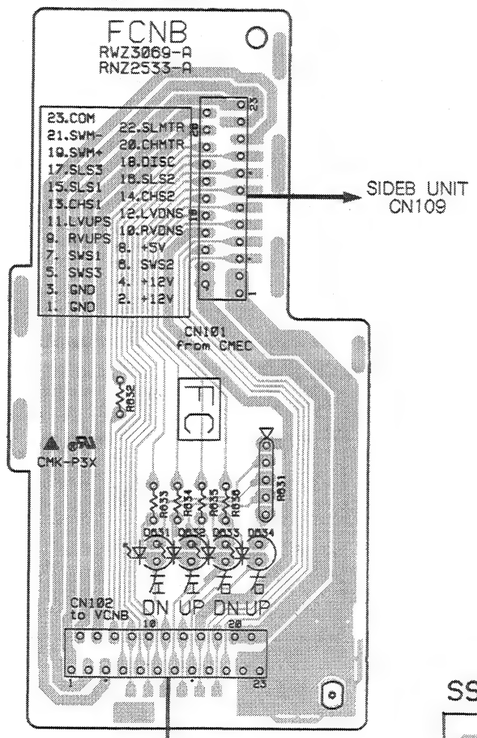
DR - D20AX
DRM - 200AX

2.6 FCNB, ENCB, CMSL, KEYB, LEDB, SSDC, LAMP, SSEB, SSAB AND CMSB UNITS

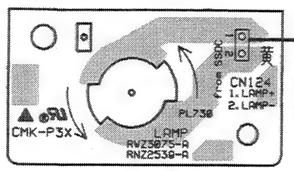
KEYB UNIT



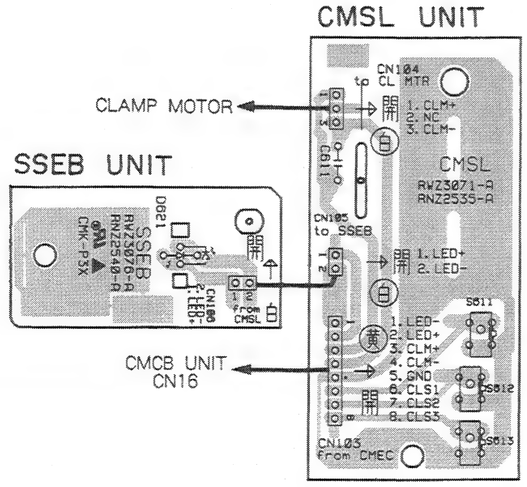
FCNB UNIT



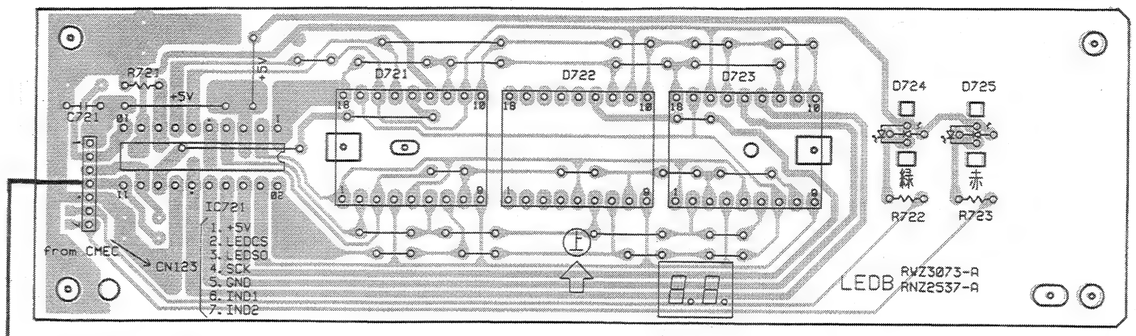
LAMP UNIT



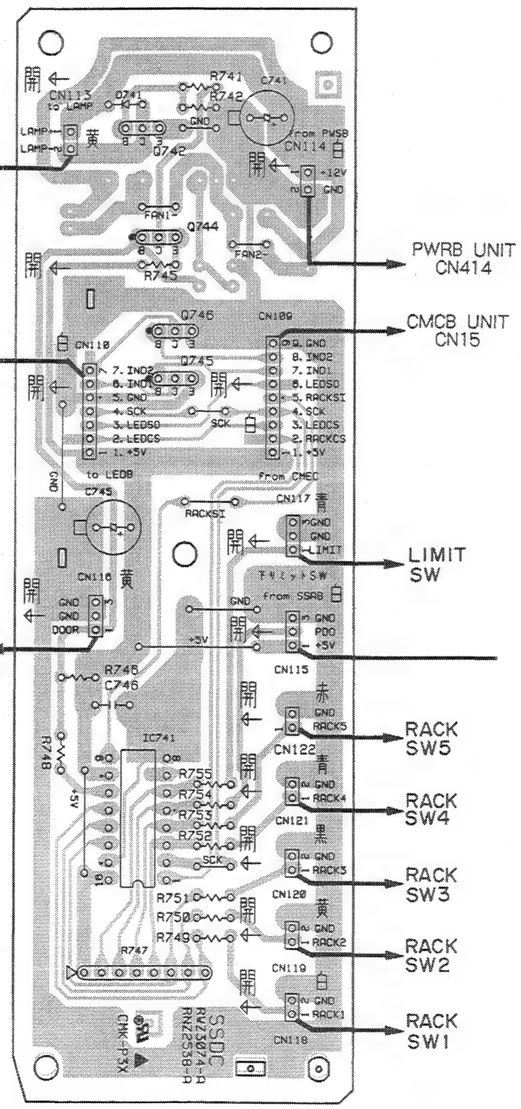
CMSL UNIT



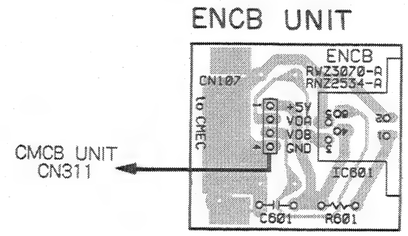
LEDB UNIT



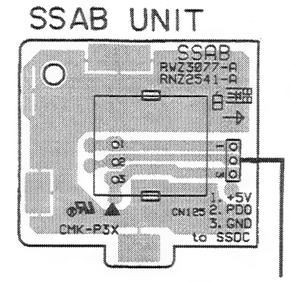
SSDC UNIT



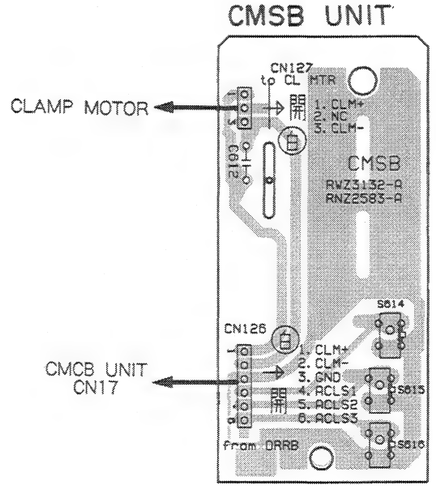
ENCB UNIT



SSAB UNIT



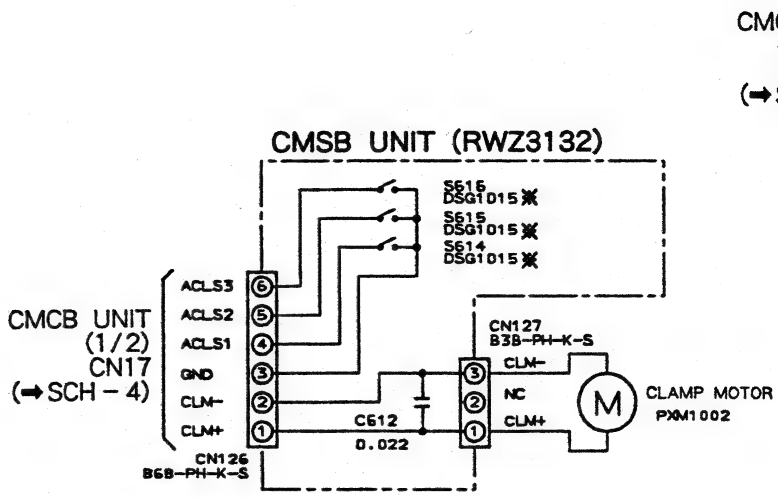
CMSB UNIT

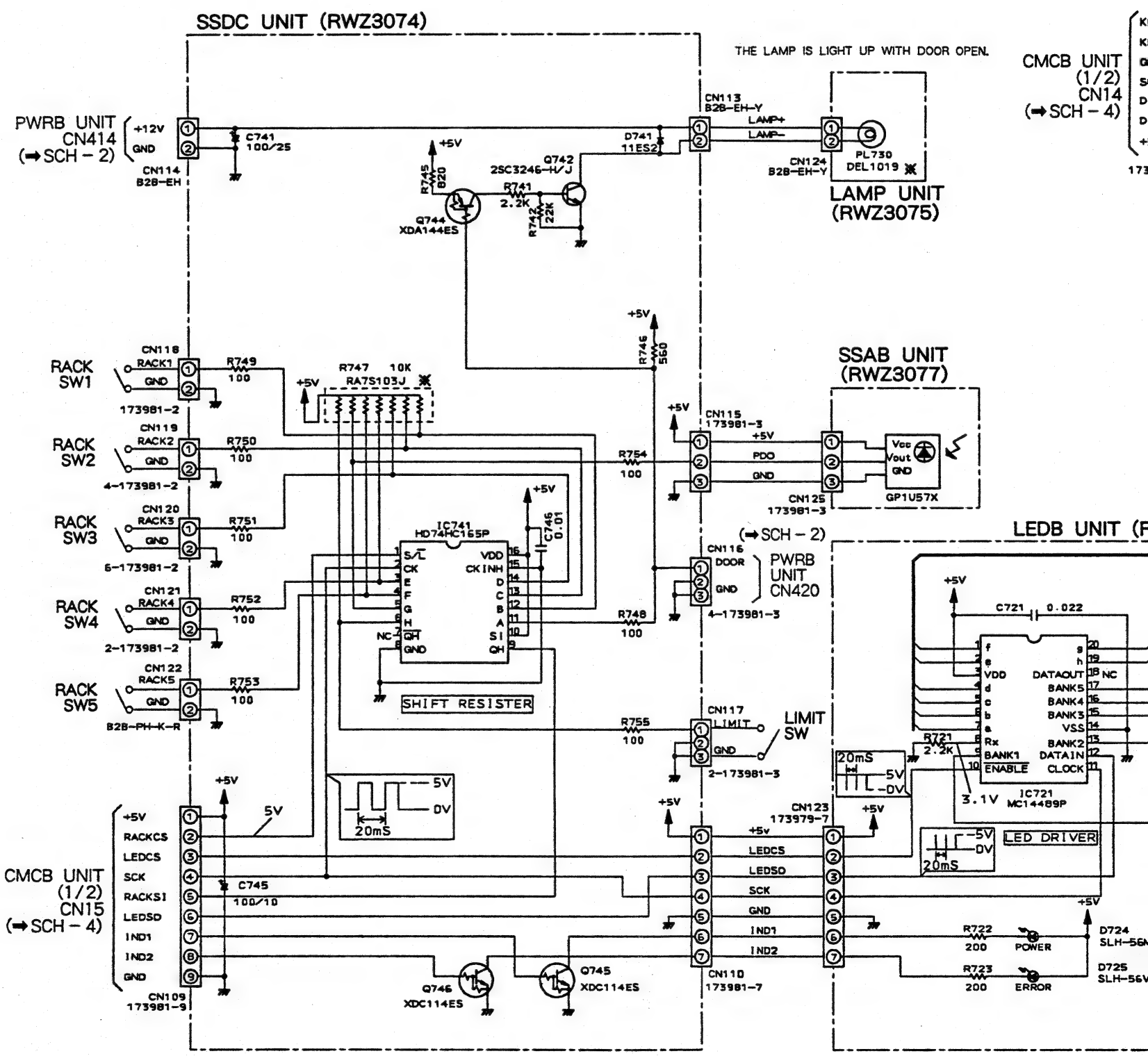


(RNP1549-A)

● This diagram is viewed from the mounted parts side.

	Mechanism condition	SW	Input level to IC741
DOOR CN116	Door open	ON	LOW
	Door close	OFF	HIGH
RACK1 – 5 CN118 – 22	Rack is present.	ON	LOW
	Rack is absent.	OFF	HIGH
LIMIT CN117	Carriage base is positioned at lowermost.	ON	LOW
	Carriage base is positioned at excepting lowermost.	OFF	HIGH





SCH-6 FCNB UNIT, ENCB UNIT, CMSL UNIT, KEYB UNIT, LEDB UNIT, SSDC UNIT, LAMP UNIT, SSEB UNIT, SSAB UNIT, CMSB UNIT

(RWZ3071)

S613 DSG1015 ※
S612 DSG1015 ※
S611 DSG1015 ※

CN104 B3B-PH-K-S
CLM-
NC
CLM+
CLAMP MOTOR PXM1002

CN105 173981-2
LED+
LED-
D621 S1R-56SB3H
CN106 173981-2

SSEB UNIT (RWZ3076)

ENCB UNIT (RWZ3070)

• DURING STOP: 0V or 5V (FIXATION)
• DURING ROTATION:
5V
0V

CMCB UNIT (2/2) CN311 (➡SCH-5)
+5V
VOA
VOB
GND
CN107 S4B-PH-K-S

C601 0.022
R601 270
IC601 GP1A30R

SCH-6

KEYB UNIT (RWZ3072)

S703 R713 2.2K SUBMODE+
S704 R714 3.3K SUBMODE-
S705 R715 4.7K S100
S706 R716 10K S10
S707 R717 27K S1
S708 ENTER
S709 R718 2.2K MODE
S710 DM/OFF MODE+
S703~S710 : RSG1034 ※

KEY1
KEY2
GND
SCK
DIPCS
DIPSI
+5V
CN108 173979-7

R702 100
R703 100
R704 100

SHIFT RESISTER
IC701 HD74HC165P
S/L
CK
E
F
G
H
NC
QH
GND
VDD
CKINH
D
C
B
A
SI
QH

C701 0.022
R701 10K RA8S103J ※
S702 RSB1D10 ※
C 8 4 2 1
R705 100
R706 100
R707 100
R708 100
S701 RSX1005 ※
R709 100
R710 100
R711 100
R712 100
D701 D702 D703 D704

5V
0V
20mS

S701 : ON=0V OFF=5V
D701~D704 : MTZ8.2B/C

IC701

PIN NO.	S702 "0"	"1"	"2"	"3"	"4"	"5"	"6"	"7"	"8"	"9"
11	0V	5V	0V	5V	0V	5V	0V	5V	0V	5V
12	0V	0V	5V	5V	0V	0V	5V	5V	0V	0V
13	0V	0V	0V	0V	5V	5V	5V	5V	0V	0V
14	0V	0V	0V	0V	0V	0V	0V	0V	5V	5V

NIT (RWZ3073)

NC

D721 SL-9284-22
D722 SL-9284-22
D723 SL-9284-22
INDICATOR HOLDER : RNK2028 ※

IC721 (PIN1, 2, 4-7, 9, 13, 15-17, 19, 20)

D721-D723	
LIGHTING	LIGHTS OUT
5V / 0V	0V

D724 SLH-56MC35H
D725 SLH-56VC35H

FCNB UNIT (RWZ3069)

D631, D633 : SEL6C10R
D632, D634 : SEL6410G

R631 560 RA4S561J ※
+5V
D631 D632 D633 D634

COM SLMTR SWM- CHMTR SWM+ DISC SLS3 SLS2 SLS1 CHS2 CHS1 LVDNS LVUPS RVDNS RVUPS +5V SWS1 SWS2 SWS3 +12V GND +12V GND

R632 100
R633
R634
R635
R636

R633~R636 2.7KΩ

CN101 5597-23AP8
CN102 5597-23AP8

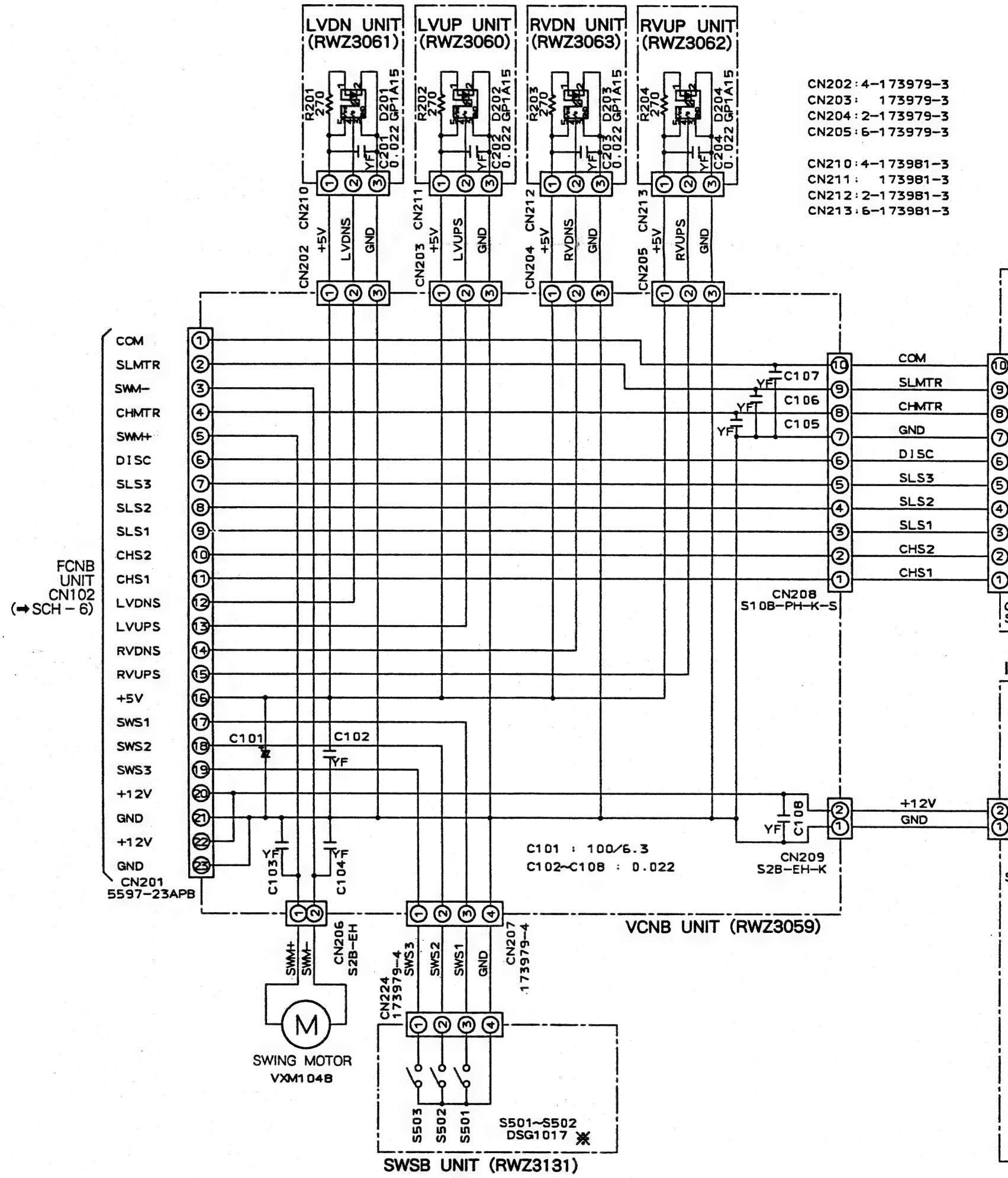
SIDEB UNIT CN109 (➡SCH-1)

VCNB UNIT CN201 (➡SCH-7)

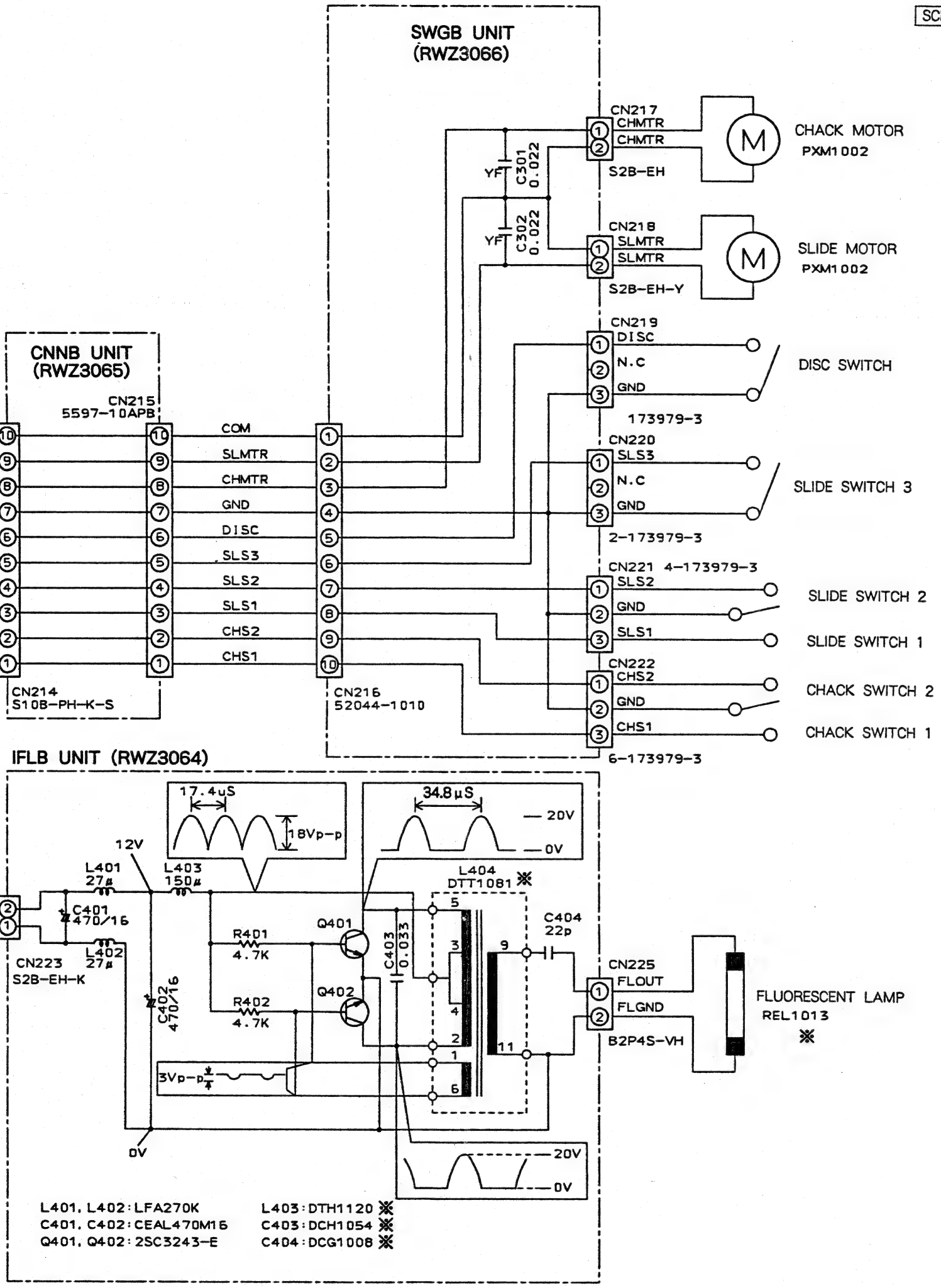
FCNB UNIT, ENCB UNIT, CMSL UNIT, KEYB UNIT, LEDB UNIT, SSDC UNIT, LAMP UNIT, SSEB UNIT, SSAB UNIT, CMSB UNIT

SCH-6

2.7 VCNB, LVUP, LVDN, RVUP, RVDN, IFLB, CNNB, SWGB AND SWSB UNITS



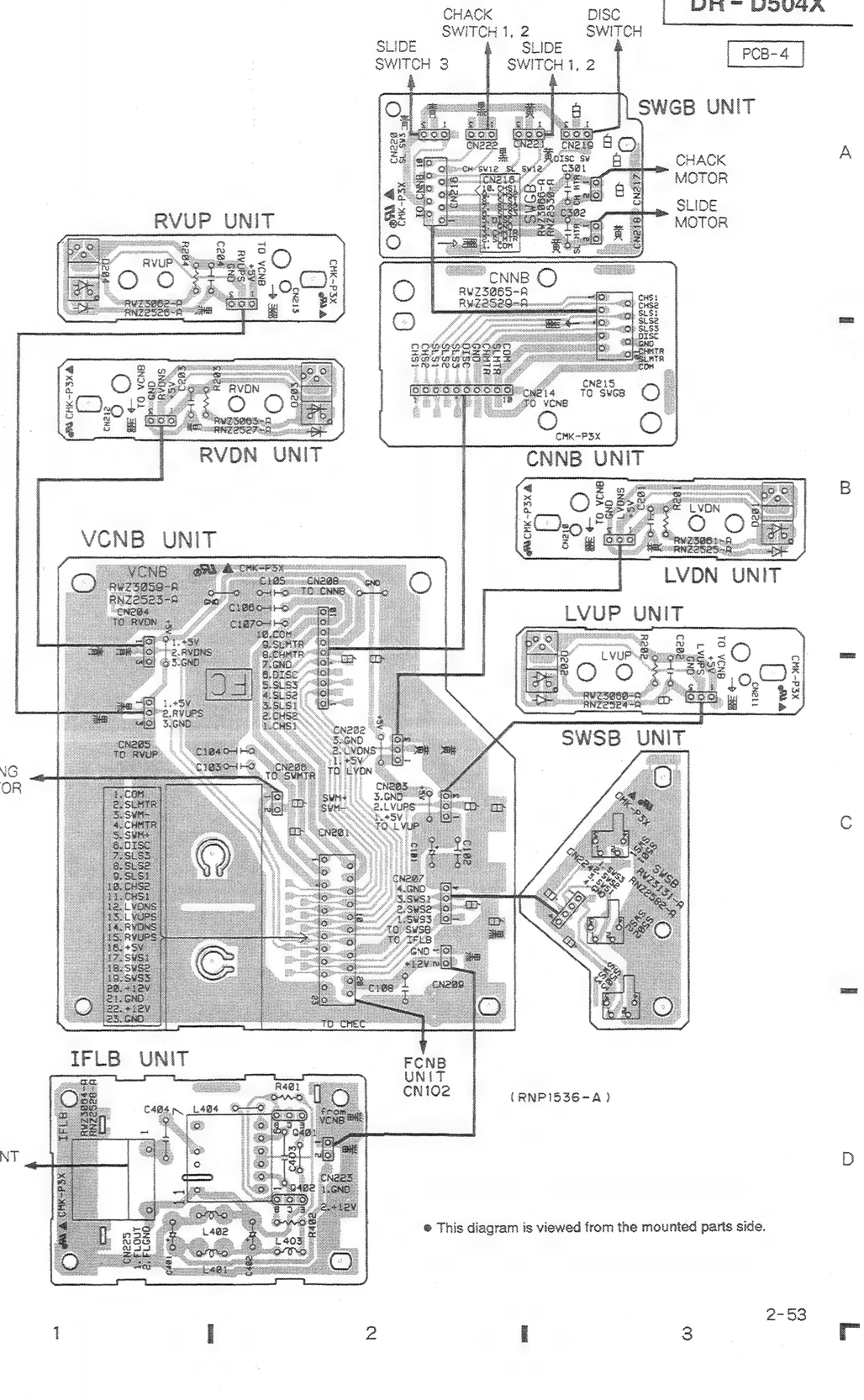
SCH-7

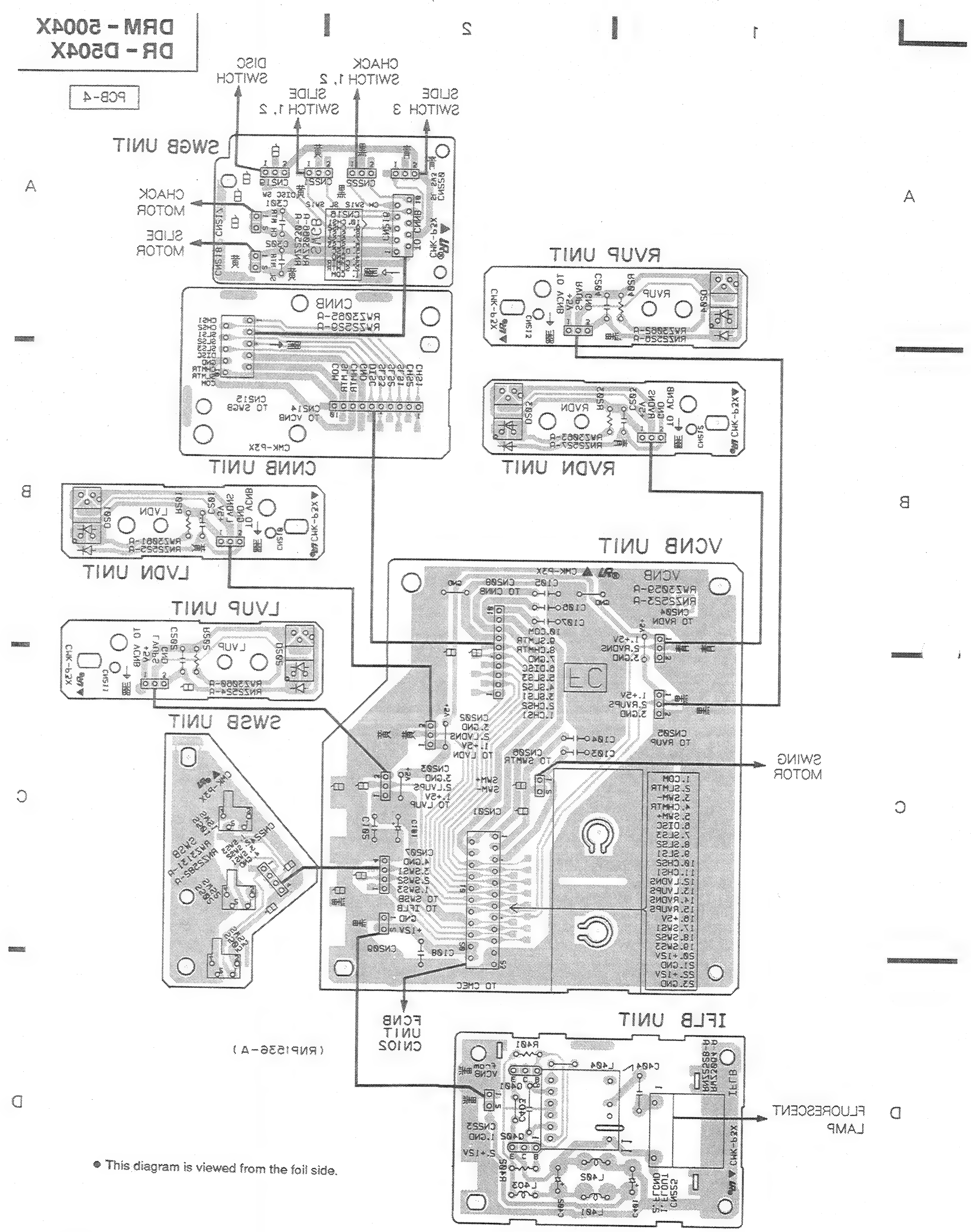


VCNB UNIT, LVUP UNIT, LVDN UNIT,
RVUP UNIT, RVDN UNIT, IFLB UNIT,
CNNB UNIT, SWGB UNIT, SWSB UNIT

SCH-7

PCB-4

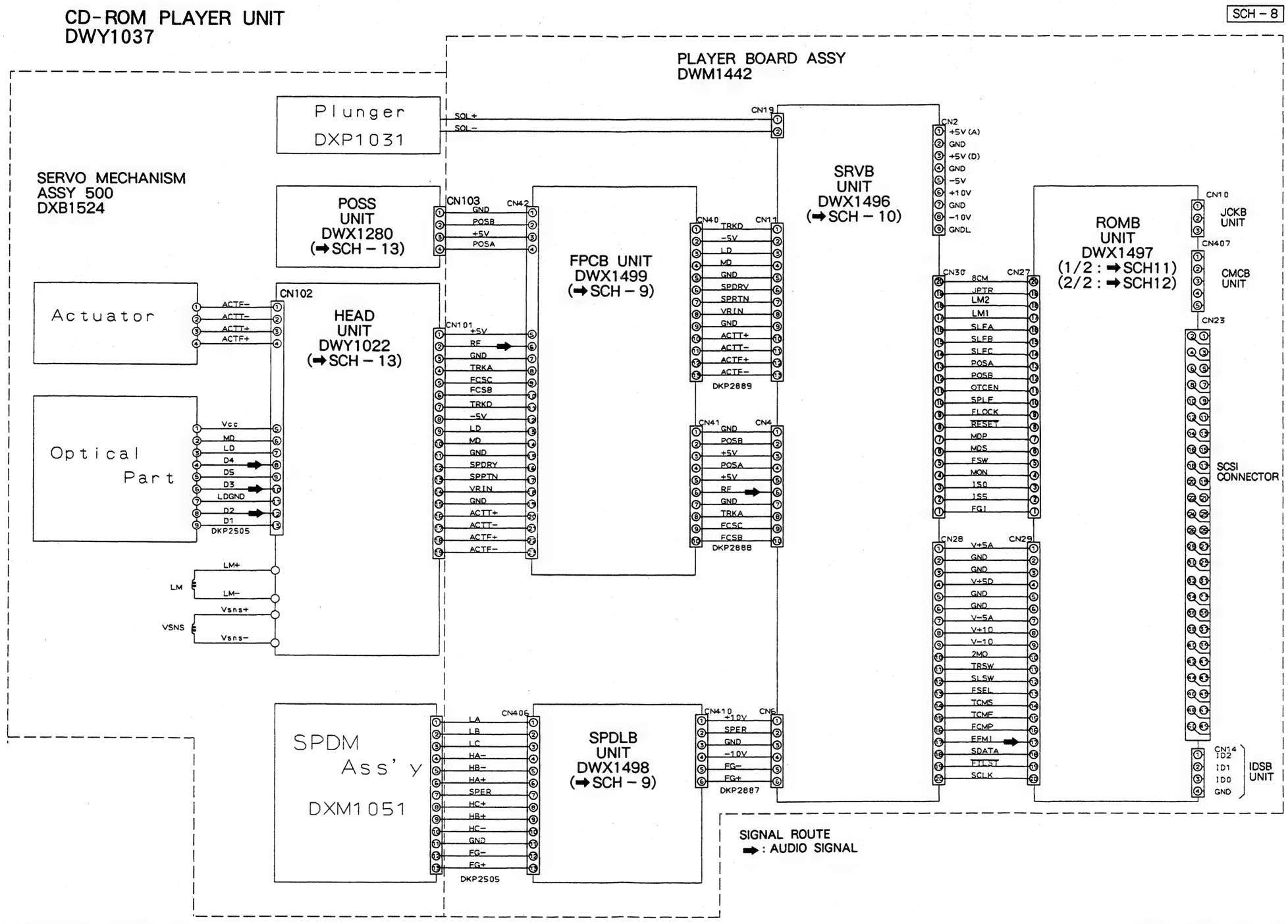

CHACK SWITCH 1, 2
DISC SWITCH
SLIDE SWITCH 3
SLIDE SWITCH 1, 2
SWGB UNIT
CHACK MOTOR
SLIDE MOTOR
RVUP UNIT
CNNB UNIT
RVDN UNIT
LVDN UNIT
VCNB UNIT
LVUP UNIT
SWSB UNIT
SWING MOTOR
IFLB UNIT
FCNB UNIT CN102
FLUORESCENT LAMP
(RNP1536-A)
● This diagram is viewed from the mounted parts side.



● This diagram is viewed from the foil side.

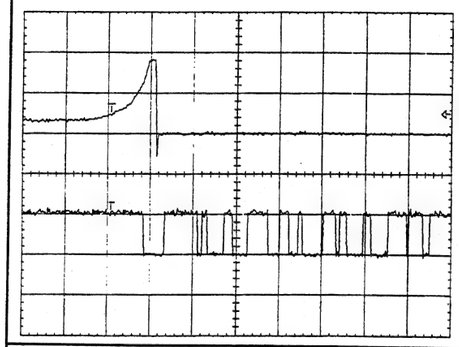
2.8 CD-ROM PLAYER UNIT

2.8.1 CD-ROM PLAYER UNIT OVERALL WIRING DIAGRAM

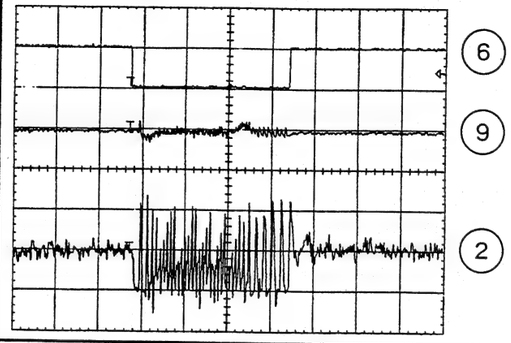


WAVEFORMS for CD-ROM PLAYER

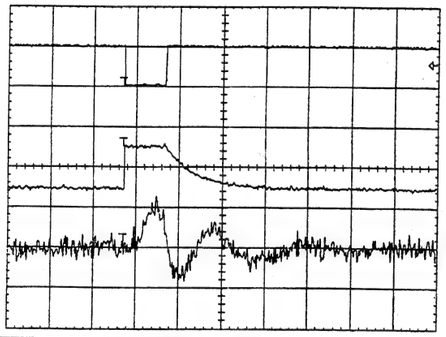
① TP1 Pin 2 (FCSER) (SRVB UNIT)
V : 2V/div., H : 10msec/div.
⑤ CN28 Pin 16 (FCMP) (SRVB UNIT)
V : 5V/div., H : 10msec/div.
FOCUS IN



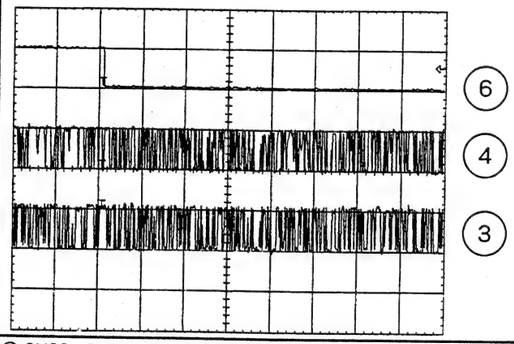
② TP1 Pin 4 (TRKER) (SRVB UNIT)
V : 1V/div., H : 1msec/div.
⑥ IC24 Pin 78 (ROMB UNIT)
V : 5V/div., H : 1msec/div.
⑨ IC5 Pin 1 (ROMB UNIT)
V : 2V/div., H : 1msec/div.
× 4 MULTI TRACK JUMP



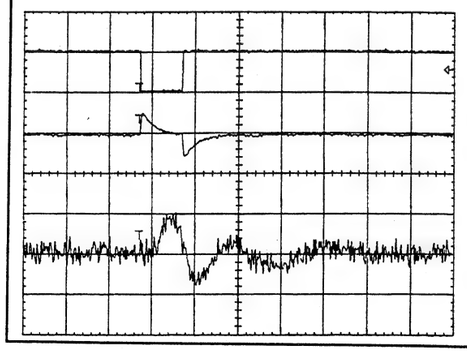
② TP1 Pin 4 (TRKER) (SRVB UNIT)
V : 10V/div., H : 200 µsec/div.
⑥ IC24 Pin 78 (ROMB UNIT)
V : 5V/div., H : 200 µsec/div.
⑦ CN28 Pin 11 (TRSW) (SRVB UNIT)
V : 1V/div., H : 200 µsec/div.
× 4 STILL



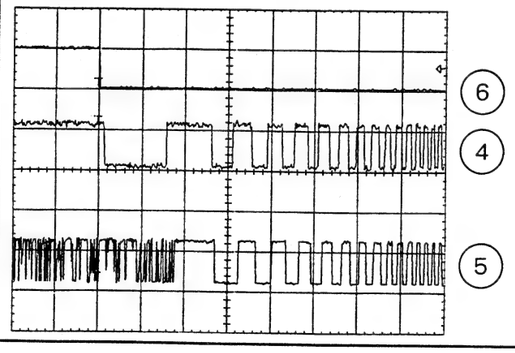
③ IC2 Pin 7 (SRVB UNIT)
V : 5V/div., H : 20msec/div.
④ CN28 Pin 14 (TCMS) (SRVB UNIT)
V : 5V/div., H : 20msec/div.
⑥ IC24 Pin 78 (ROMB UNIT)
V : 5V/div., H : 20msec/div.
× 4 SEARCH



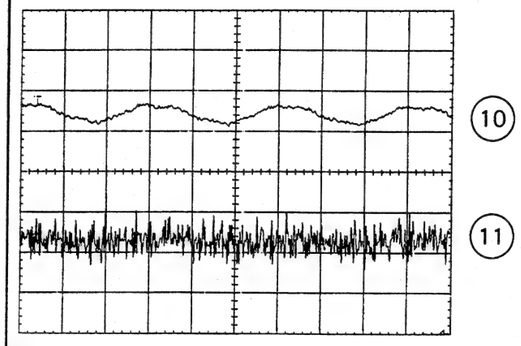
② TP1 Pin 4 (TRKER) (SRVB UNIT)
V : 1V/div., H : 200 µsec/div.
⑥ IC24 Pin 78 (ROMB UNIT)
V : 5V/div., H : 200 µsec/div.
⑧ IC5 Pin 7 (ROMB UNIT)
V : 2V/div., H : 200 µsec/div.
× 1 STILL



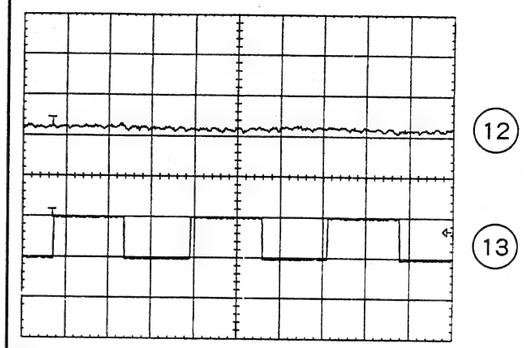
④ CN28 Pin 14 (TCMS) (SRVB UNIT)
V : 5V/div., H : 1msec/div.
⑤ CN28 Pin 16 (FCMP) (SRVB UNIT)
V : 5V/div., H : 1msec/div.
⑥ IC24 Pin 78 (ROMB UNIT)
V : 5V/div., H : 1msec/div.
× 4 FWD



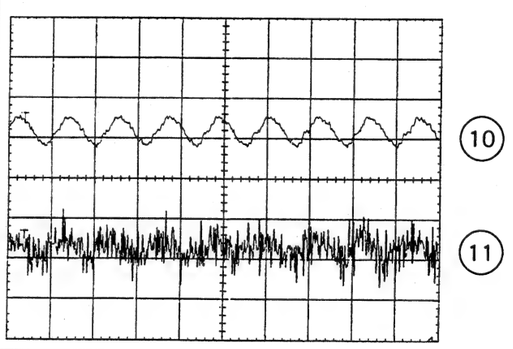
⑩ CN4 Pin 6 (SPDRV) (SRVB UNIT)
V : 1V/div., H : 50msec/div.
⑪ IC55 Pin 1 (SRVB UNIT)
V : 200mV/div., H : 50msec/div.
× 1 PLAY



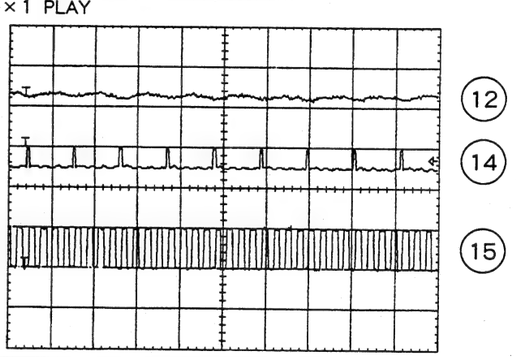
⑫ CN410 Pin 2 (SPER) (SPDLB UNIT)
V : 200mV/div., H : 2msec/div.
⑬ CN30 Pin 1 (FG1) (SRVB UNIT)
V : 5V/div., H : 2msec/div.



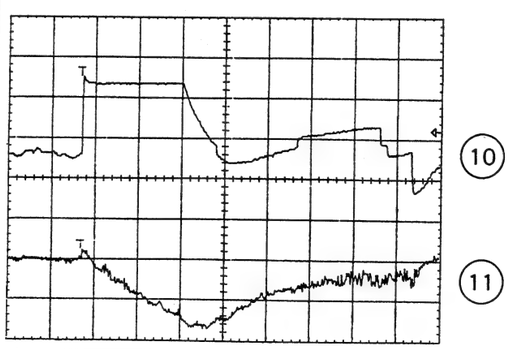
⑩ CN4 Pin 6 (SPDRV) (SRVB UNIT)
V : 1V/div., H : 50msec/div.
⑪ IC55 Pin 1 (SRVB UNIT)
V : 200mV/div., H : 50msec/div.
× 4 PLAY



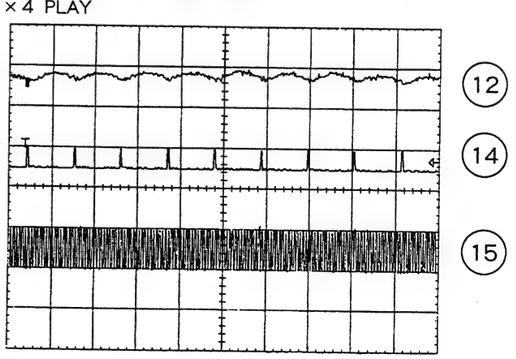
⑫ CN410 Pin 2 (SPER) (SPDLB UNIT)
V : 200mV/div., H : 500 µsec/div.
⑭ CN30 Pin 7 (MDP) (SRVB UNIT)
V : 5V/div., H : 500 µsec/div.
⑮ CN30 Pin 6 (MDS) (SRVB UNIT)
V : 5V/div., H : 500 µsec/div.
× 1 PLAY



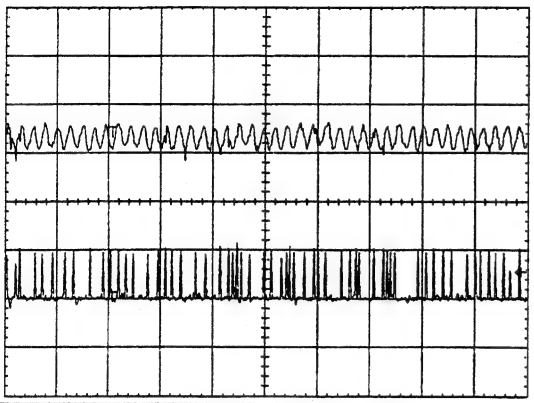
⑩ CN4 Pin 6 (SPDRV) (SRVB UNIT)
V : 5V/div., H : 20msec/div.
⑪ IC55 Pin 1 (SRVB UNIT)
V : 2V/div., H : 20msec/div.
× 4 SEARCH



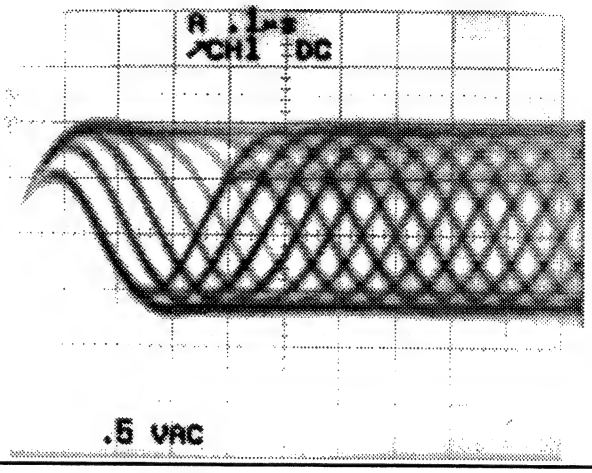
⑫ CN410 Pin 2 (SPER) (SPDLB UNIT)
V : 200mV/div., H : 500 µsec/div.
⑭ CN30 Pin 7 (MDP) (SRVB UNIT)
V : 5V/div., H : 500 µsec/div.
⑮ CN30 Pin 6 (MDS) (SRVB UNIT)
V : 5V/div., H : 500 µsec/div.
× 4 PLAY



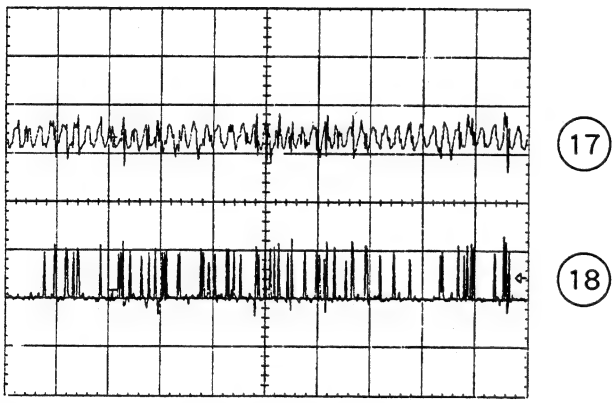
⑰ CN7 Pin 1 (PSER) (ROMB UNIT)
V : 1V/div., H : 10μsec/div.
⑱ IC24 Pin 49 (ROMB UNIT)
V : 5V/div., H : 10μsec/div.
× 1 PLAY



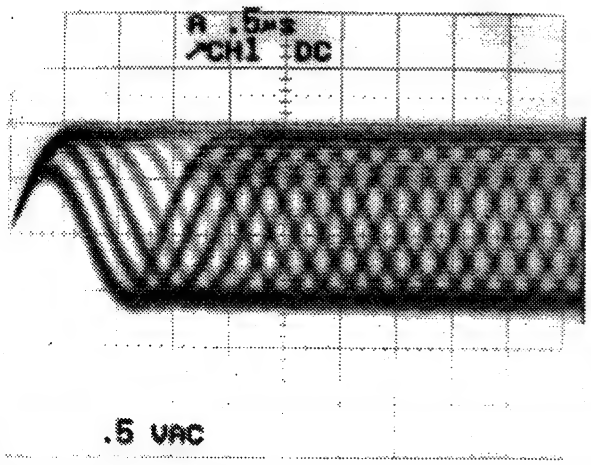
⑯ TP3 Pin 1 (RF) (SRVB UNIT)
V : 5V/div., H : 1μsec/div.
× 4 PLAY



⑰ CN7 Pin 1 (PSER) (ROMB UNIT)
V : 1V/div., H : 10μsec/div.
⑱ IC24 Pin 49 (ROMB UNIT)
V : 5V/div., H : 10μsec/div.
× 4 PLAY

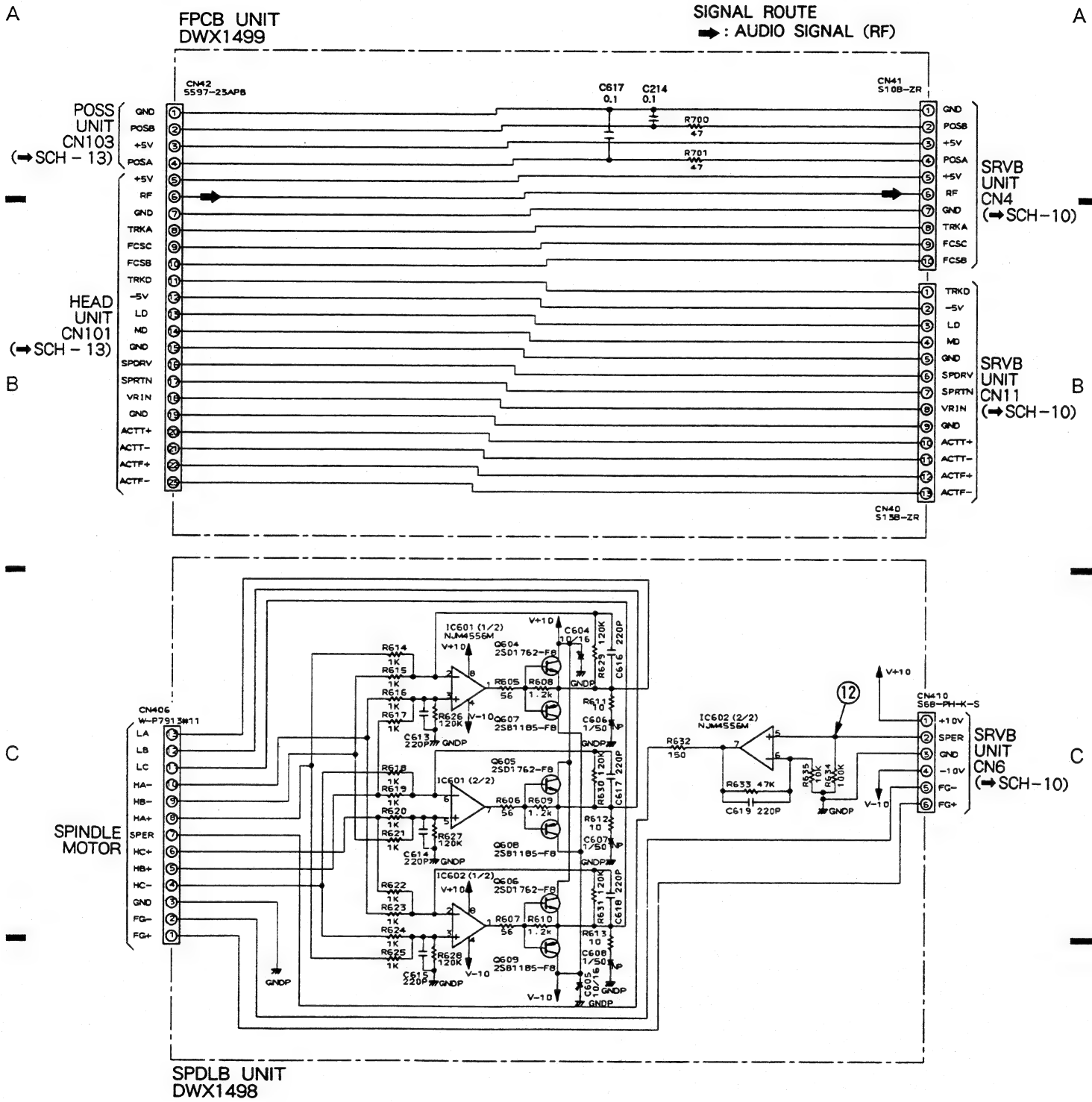


⑯ TP3 Pin 1 (RF) (SRVB UNIT)
V : 5V/div., H : 5μsec/div.
× 1 PLAY



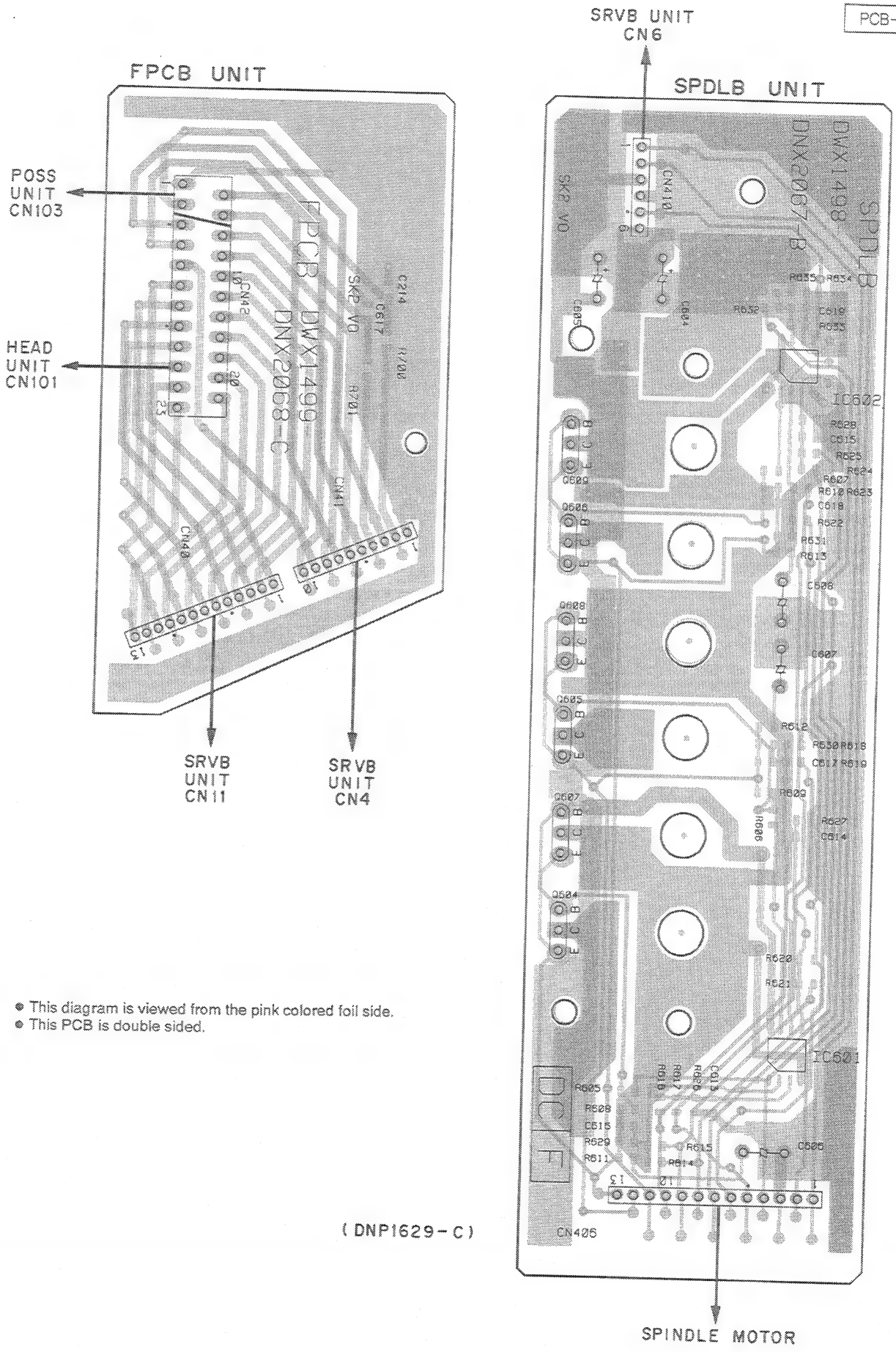
2.8.2 FPCB AND SPDLB UNITS

SCH - 9



SCH-9 FPCB UNIT, SPDLB UNIT

PCB-5



- This diagram is viewed from the pink colored foil side.
- This PCB is double sided.

(DNP1629-C)

PCB-5

- This diagram is viewed from the gray colored foil side.
- This PCB is double sided.

(DNP1629-C)

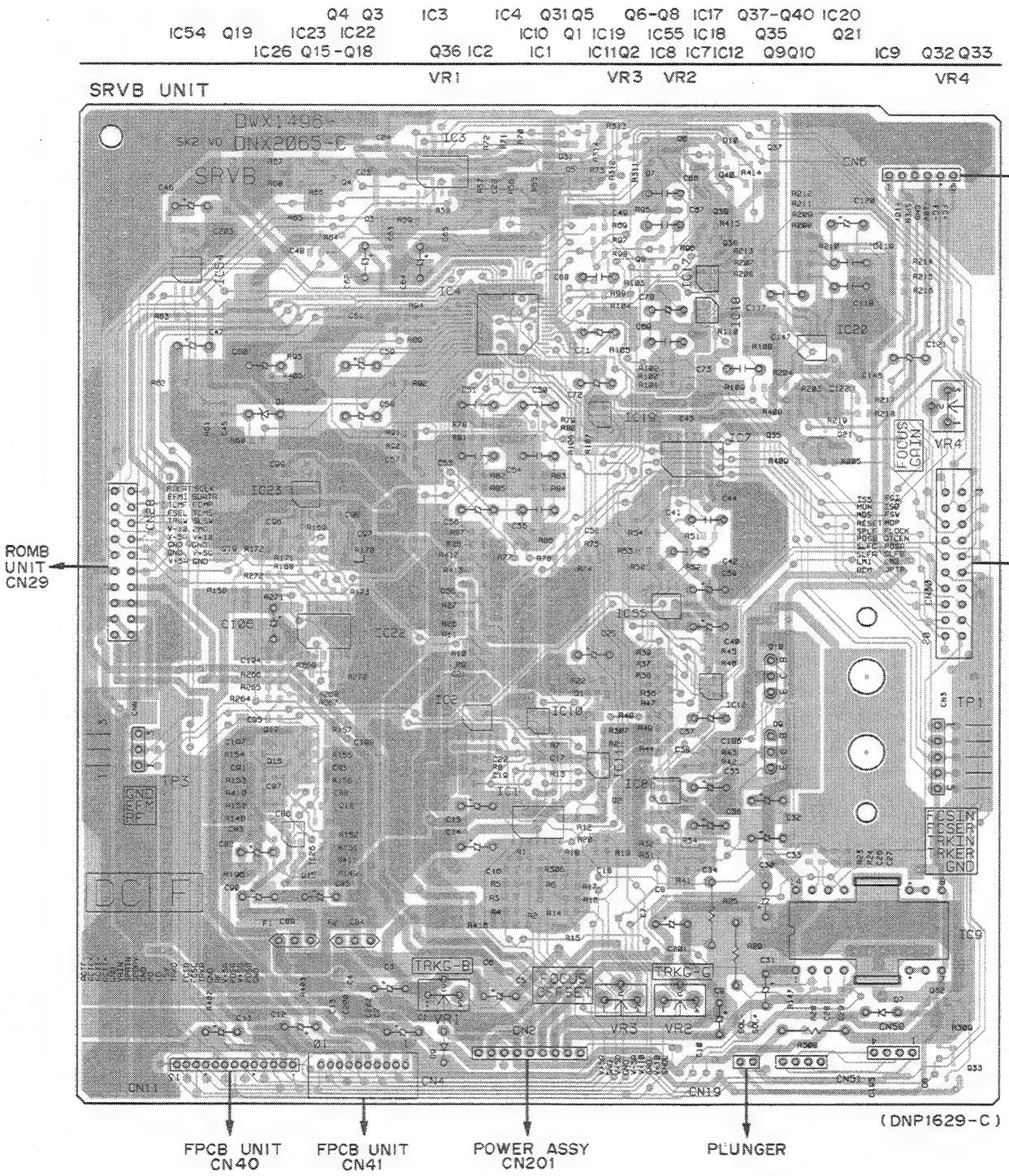
2.8.3 SRVB UNIT

PCB-6

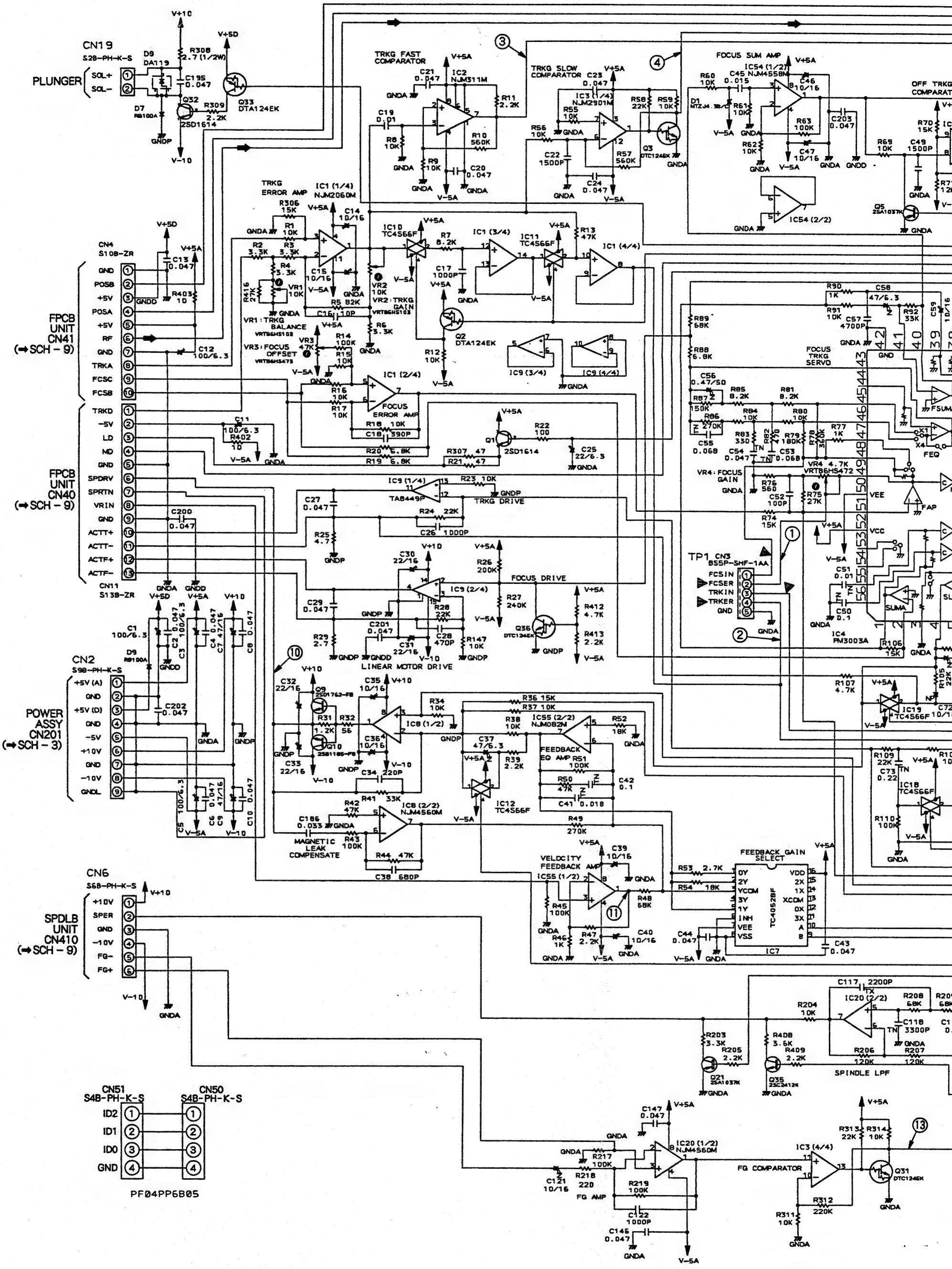
- This diagram is viewed from the gray colored foil side.
- This PCB is double sided.

2.8.3 SRVB UNIT

PCB-6



- This diagram is viewed from the pink colored foil side.
- This PCB is double sided.

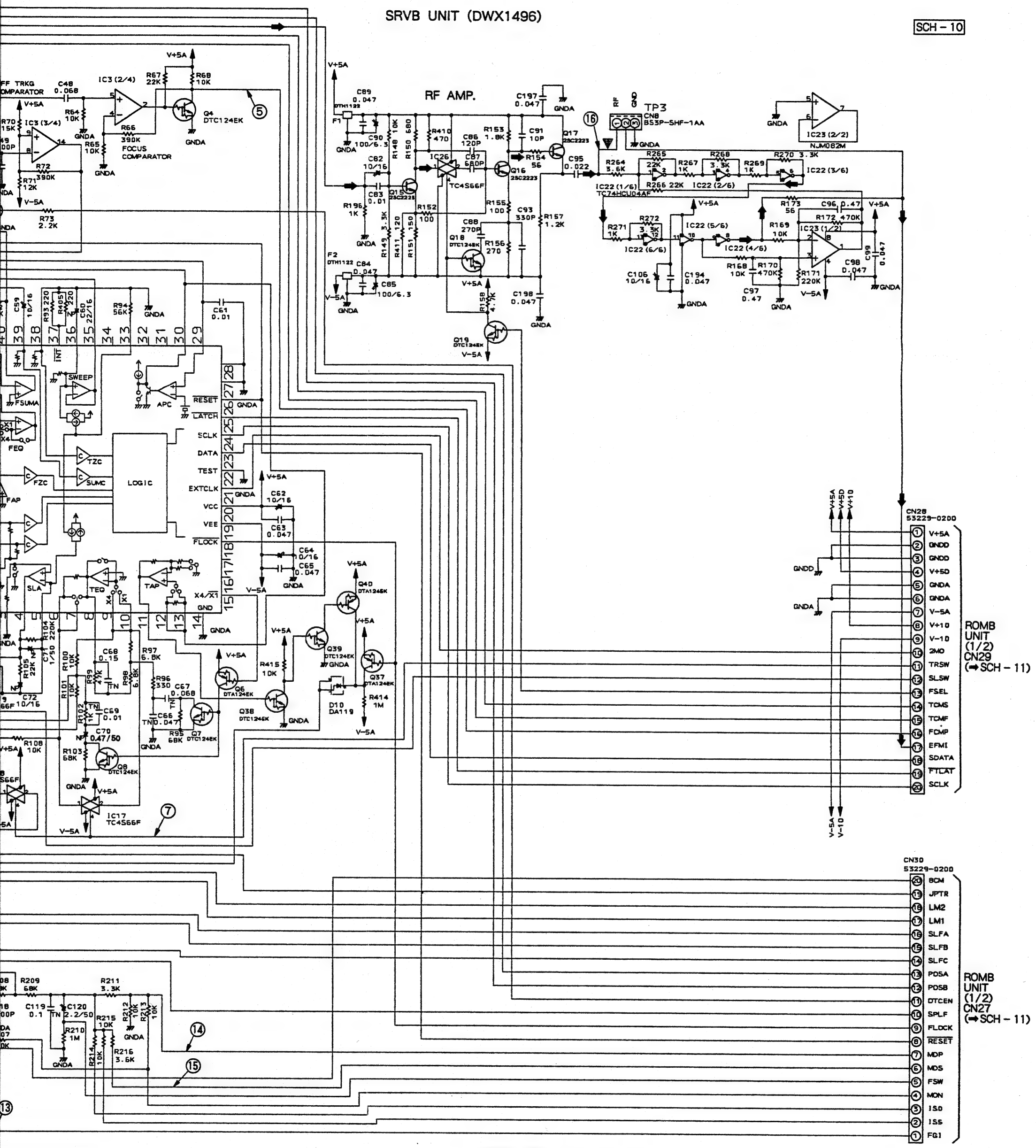


SRVB UNIT

SCH-10

SRVB UNIT (DWX1496)

SCH - 10



SIGNAL ROUTE
➡ : AUDIO SIGNAL (RF, EFM)

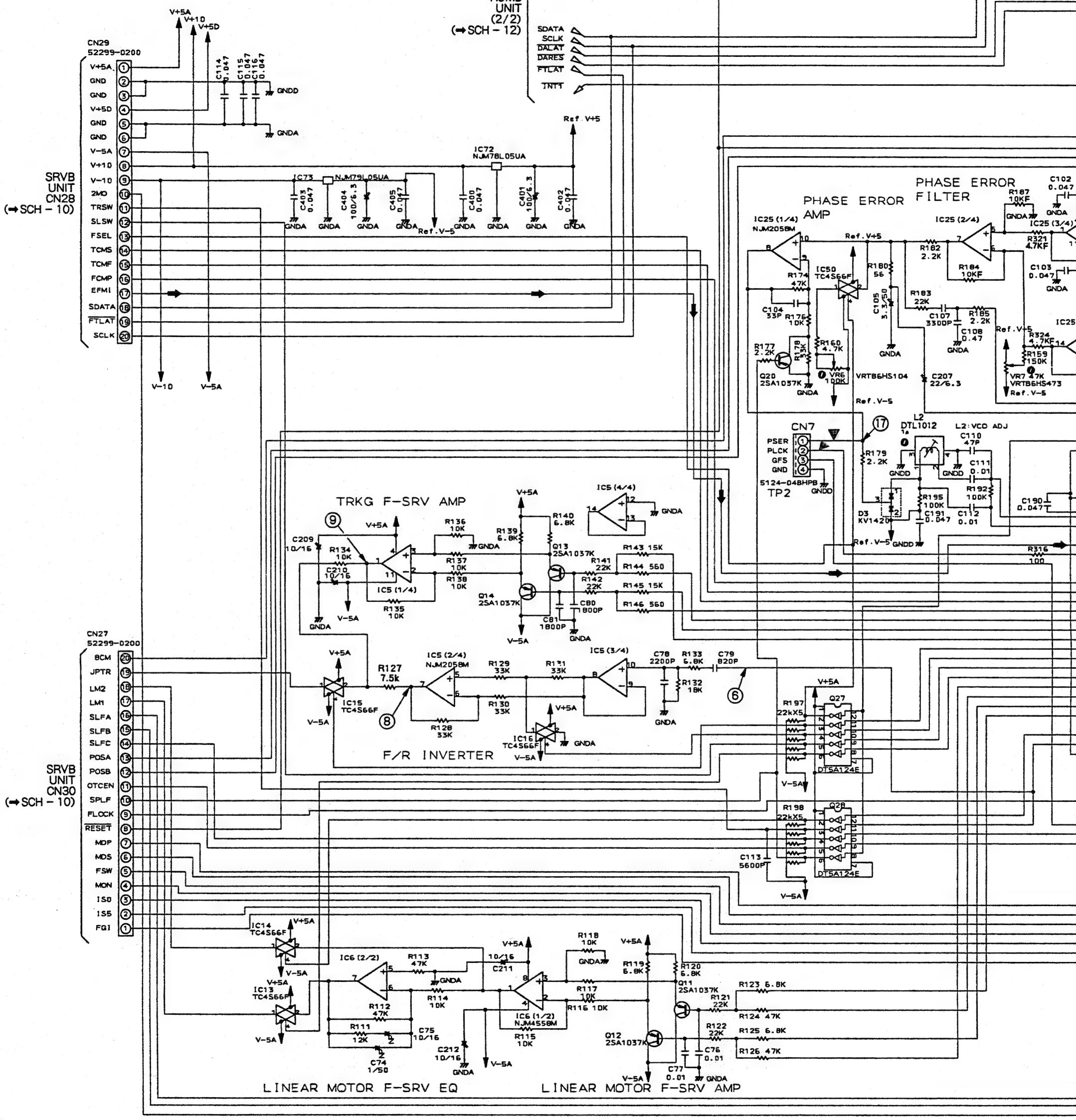
I C 4 (P M 3 0 0 3 A)

PIN NO.	VOLTAGE(V)	PIN NO.	VOLTAGE(V)	PIN NO.	VOLTAGE(V)
1-14	0	24, 25	4.9	37	-4.5
15	0.1	26	4.6	38-49	0
16, 17	0	27, 28	0	50	-5.2
18	5.3	29	-5.0	51	0
19	-5.2	30	0	52	5.3
20	5.4	31, 32	4.4	53-56	0
21	2.4	33	3.9		
22, 23	0	34-36	0		

SRVB UNIT **SCH-10**

2.8.4 ROMB UNIT(1/2)

ROMB UNIT (1/2)
(DWX1497)



SCH-11 ROMB UNIT (1/2)

D/A CONVERTER

BUFFER

AUDIO SELECT SWITCH

LPF

IC27 D/A — LC7883KM

IC28 (1/2) NJM4558M

IC28 (2/2)

IC29 TC4052BF

IC30 (1/4)

IC30 (2/4)

IC30 (3/4)

IC30 (4/4) NJM2058M

CN10

JCKB UNIT
CN105 (PLAYER 1)
CN106 (PLAYER 2)
CN107 (PLAYER 3)
CN108 (PLAYER 4)
(➡SCH – 1)

S3B-PH-K-S

CN32 5124-03BHPB

IC25 (3/4)

IC25 (4/4)

SERVO CONT

IC24 PD4379C

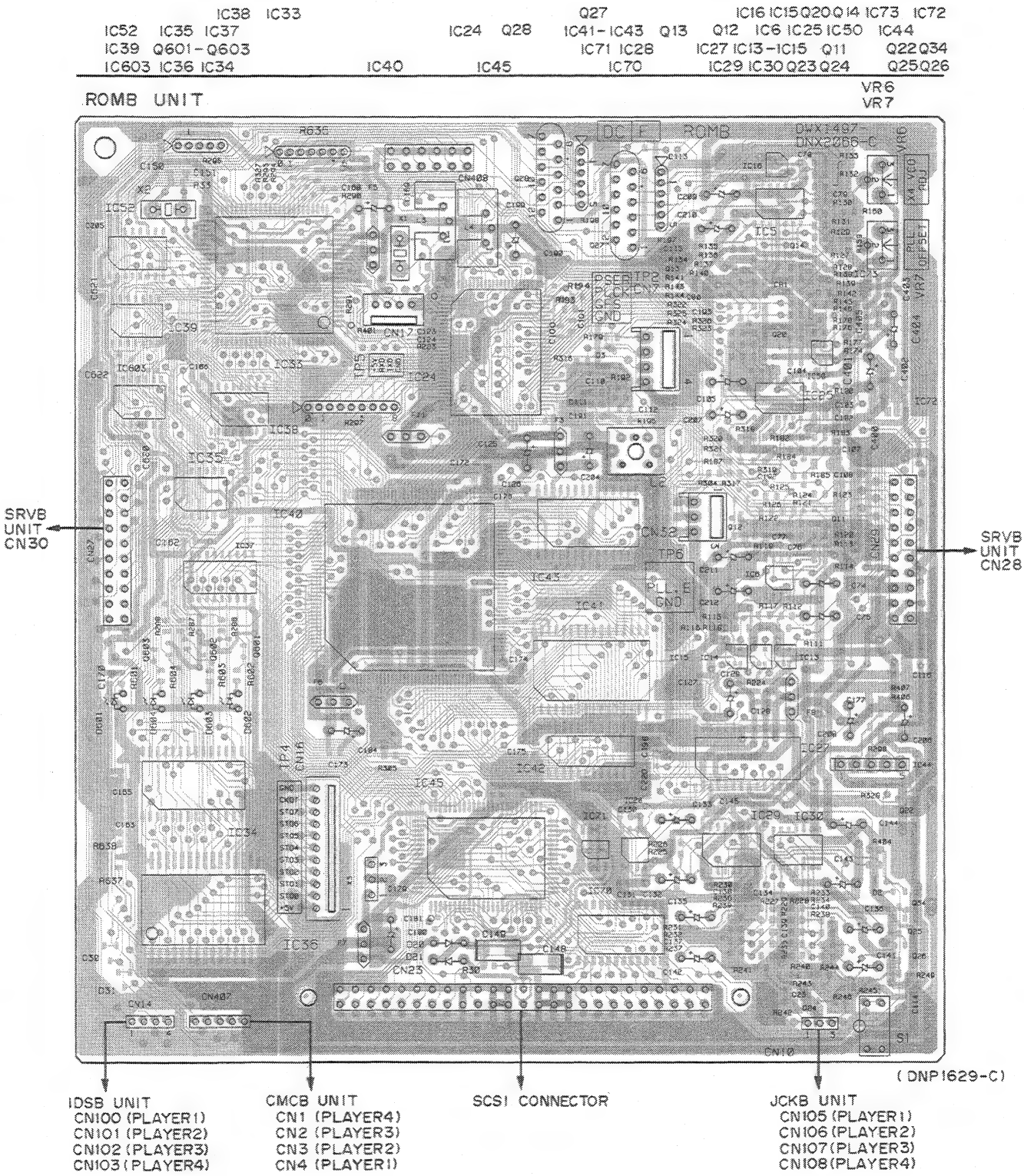
ROMB UNIT (2/2) (➡SCH – 12)

SIGNAL ROUTE
➡ : AUDIO SIGNAL (EFM, AUDIO)

ROMB UNIT (1/2)

SCH-11

PCB-7



- This diagram is viewed from the pink colored foil side.
- This PCB is double sided.

PCB-7

- This diagram is viewed from the gray colored foil side.
- This PCB is double sided.

IC24 (PD4379C)

PIN NO.	VOLTAGE(V)	PIN NO.	VOLTAGE(V)	PIN NO.	VOLTAGE(V)
1	0	26	0	55	2.2
2	4.9	27	2.3	56	0
3,4	2.3	28	0	57	2.7
5	0	29,30	4.9	58-60	2.3
6	2.3	31,32	4.5	61-63	5.2
7	4.9	33	2.1	64-68	0
8	2.4	34	2.4	69	4.9
9	4.6	35	2.5	70	0
10,11	4.9	36	2.1	71	4.9
12	2.9	37	2.5	72-76	0
13	2.8	38	2.6	77	4.9
14	2.3	39	2.0	78	0
15	2.6	40,41	0	79	4.9
16	1.8	42	4.9	80	0
17	1.9	43	2.1	81	5.2
18	2.3	44-46	0	82-91	0
19	2.6	47	0.3	92	5.1
20	1.8	48	-0.2	93	2.5
21	2.3	49,50	0	94-97	4.9
22	1.8	51	0.6	98	2.5
23	2.2	52	4.9	99	0
24	0	53	0	100	2.1
25	4.9	54	2.0		

IC27 (LC7883KM)

PIN NO.	VOLTAGE(V)	PIN NO.	VOLTAGE(V)	PIN NO.	VOLTAGE(V)
1	2.6	6	0	23	2.1
2	5.3	7	2.7	24	2.3
3	5.4	8-11	0	25	2.4
4	4.9	12	4.7	26,27	0
5	1.6	13-22	0	28	2.6

IC33 : GGC1062 (UPD70325GJ-10-5BG)

PIN NO.	VOLTAGE(V)	PIN NO.	VOLTAGE(V)	PIN NO.	VOLTAGE(V)
1	1.0	31-34	4.9	66,67	4.7
2	0	35-41	0	68	2.1
3	1.0	42,43	4.9	69	4.7
4,5	3.8	44	0	70	1.6
6,7	1.0	45-48	4.9	71	2.0
8	1.2	49	0	72	4.6
9	0.8	50	0.2	73	0
10	0.5	51,52	0	74	0.1
11	0	53,54	2.4	75	0
12	0.6	55,56	4.8	76-79	0.1
13	0	57	4.6	80	0
14	4.9	58	0	81	0.1
15	0	59	3.6	82	1.0
16	4.9	60	2.8	83,84	3.7
17	0	61	4.8	85-89	1.0
18-20	4.9	62	1.6	90-92	3.7
21-23	0	63	0	93	0
24	4.9	64	0.5	94	3.8
25-30	0	65	4.9		

IC40 (PD4380B)

PIN NO.	VOLTAGE(V)	PIN NO.	VOLTAGE(V)	PIN NO.	VOLTAGE(V)
1	4.9	55-59	0.4	99	2.6
2,3	2.3	60-66	2.4	100	3.3
4-6	0	67,68	0	101	3.6
7,8	4.9	69	4.9	102	4.9
9	2.3	70	1.3	103,104	0
10-12	2.4	71	3.5	105	2.1
13	0	72	1.4	106	2.3
14,15	4.9	73,74	2.9	107	2.1
16	4.4	75,76	3.4	108	1.9
17	0	77	3.3	109	2.2
18	4.9	78-84	2.4	110	1.8
19-22	0	85,86	4.6	111	2.2
23	4.9	87	4.9	112	1.6
24	0	88	2.3	113	4.9
25	4.9	89	4.9	114	0
26-33	0	90	4.6	115,116	4.9
34	4.9	91	4.9	117	0
35-40	0	92	2.9	118-120	4.9
41,42	4.9	93	4.9	121	0
43-50	0.7	94	0	122-129	4.9
51	0	95	4.7	130-136	0
52-53	4.9	96,97	4.9		
54	4.5	98	3.2		

IC45 : GGC1010 (NCR53C90A-80QFP)

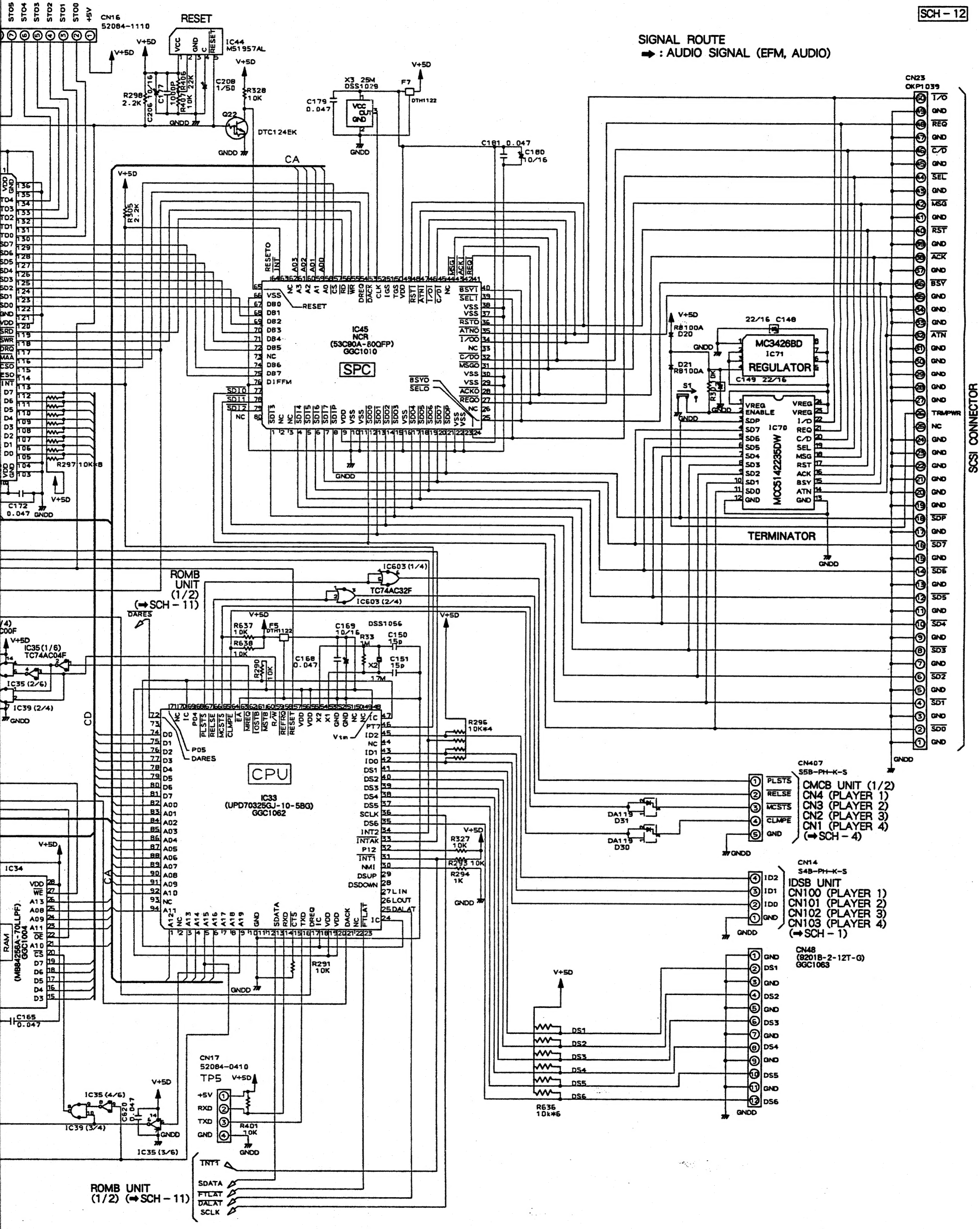
PIN NO.	VOLTAGE(V)	PIN NO.	VOLTAGE(V)	PIN NO.	VOLTAGE(V)
1	2.8	29-31	0	55	4.9
2,3	0	32	2.8	56	0
4-8	2.8	33	0	57	4.9
9	4.9	34-36	2.8	58	1.0
10,11	0	37,38	0	59,60	3.8
12-15	2.8	39-43	2.8	61	1.0
16	0	44	0	62	0
17-21	2.8	45-48	2.8	63	4.9
22,23	0	49	4.9	64-76	0
24,25	2.8	50,51	0	77-79	2.8
26	0	52	2.3	80	0
27,28	2.8	53,54	0		

2.8.5 ROMB UNIT(2/2)

SCH-12 ROMB UNIT (2/2)

SCH-12

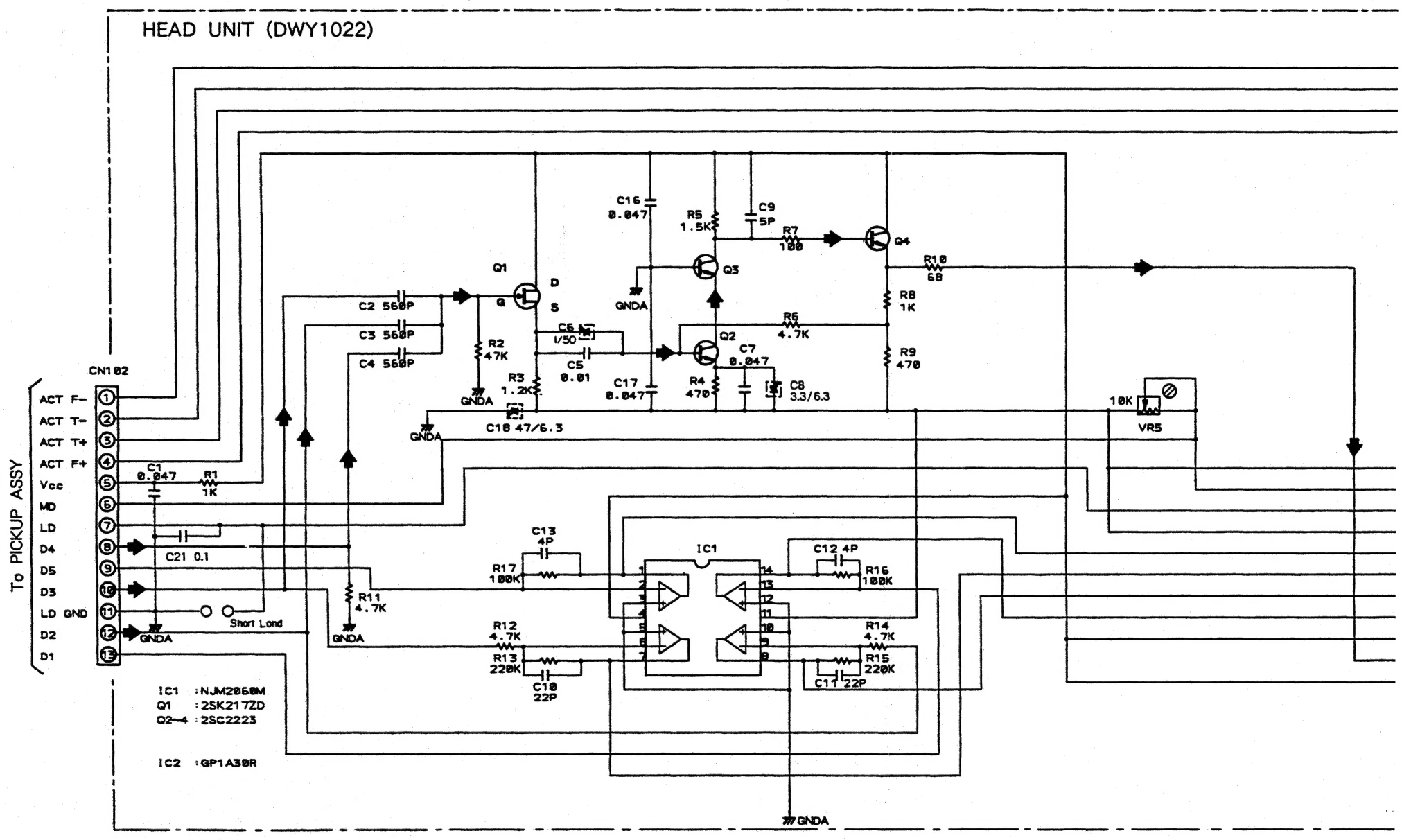
SIGNAL ROUTE
➡ : AUDIO SIGNAL (EFM, AUDIO)

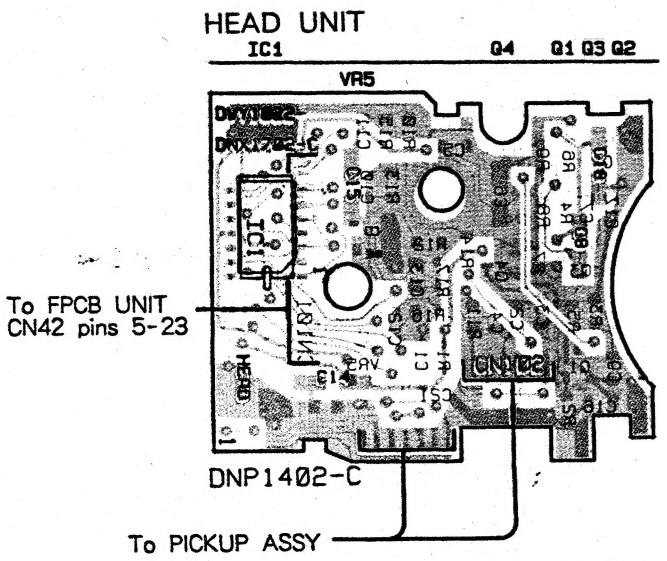


ROMB UNIT
(2/2)

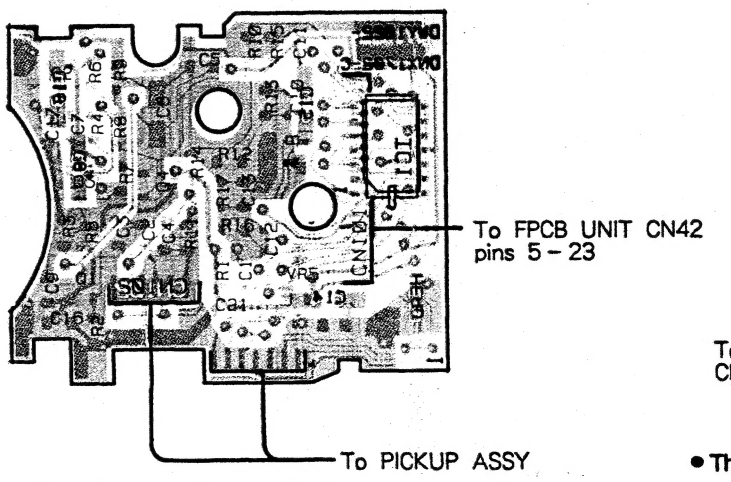
SCH-12

2.8.6 POSS AND HEAD UNITS

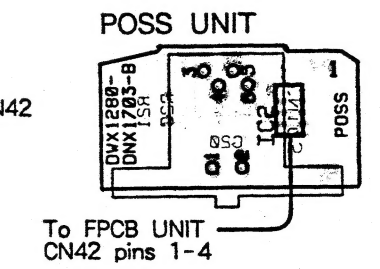




- This diagram is viewed from the pink colored foil side.
- This PCB is double sided.



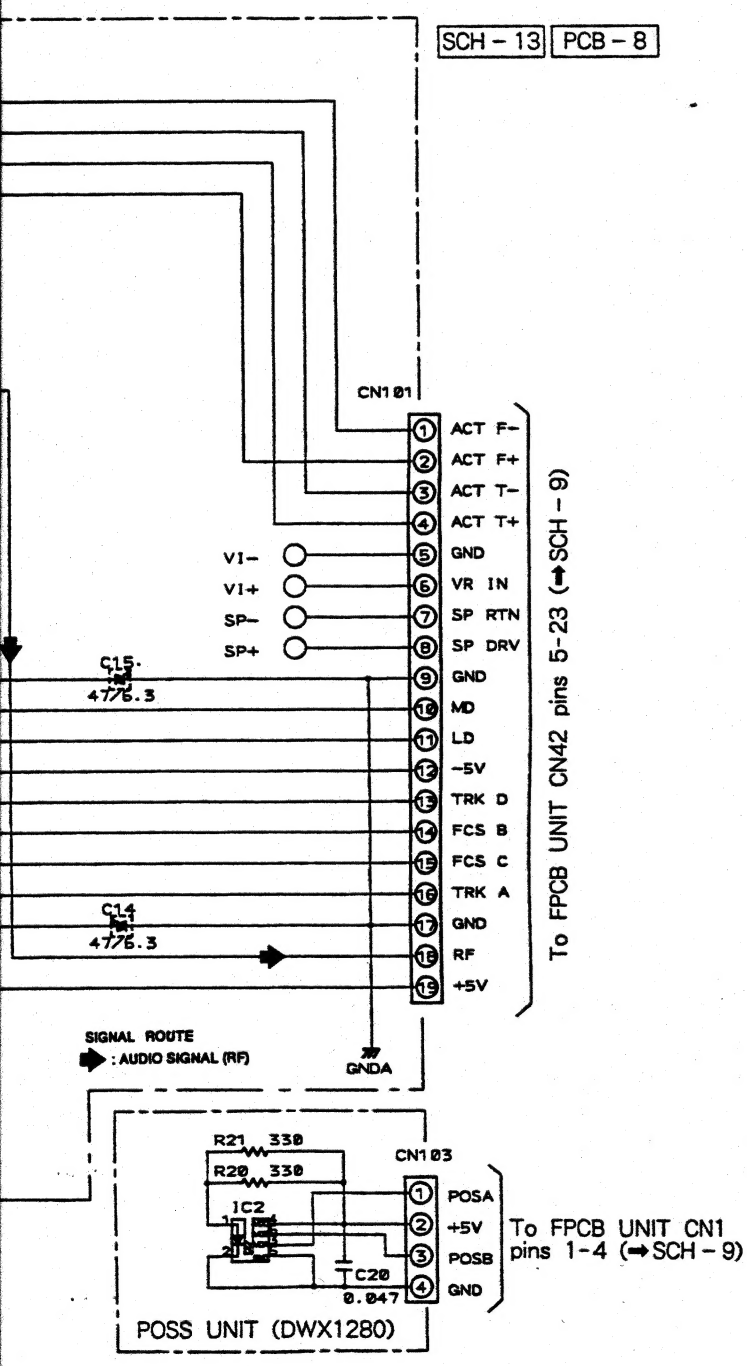
- This diagram is viewed from the gray colored foil side.
- This PCB is double sided.

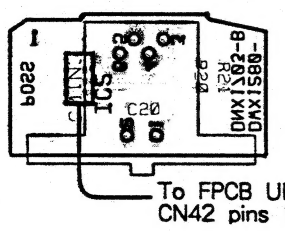


- This diagram is viewed from the pink colored foil side.
- This PCB is double sided.

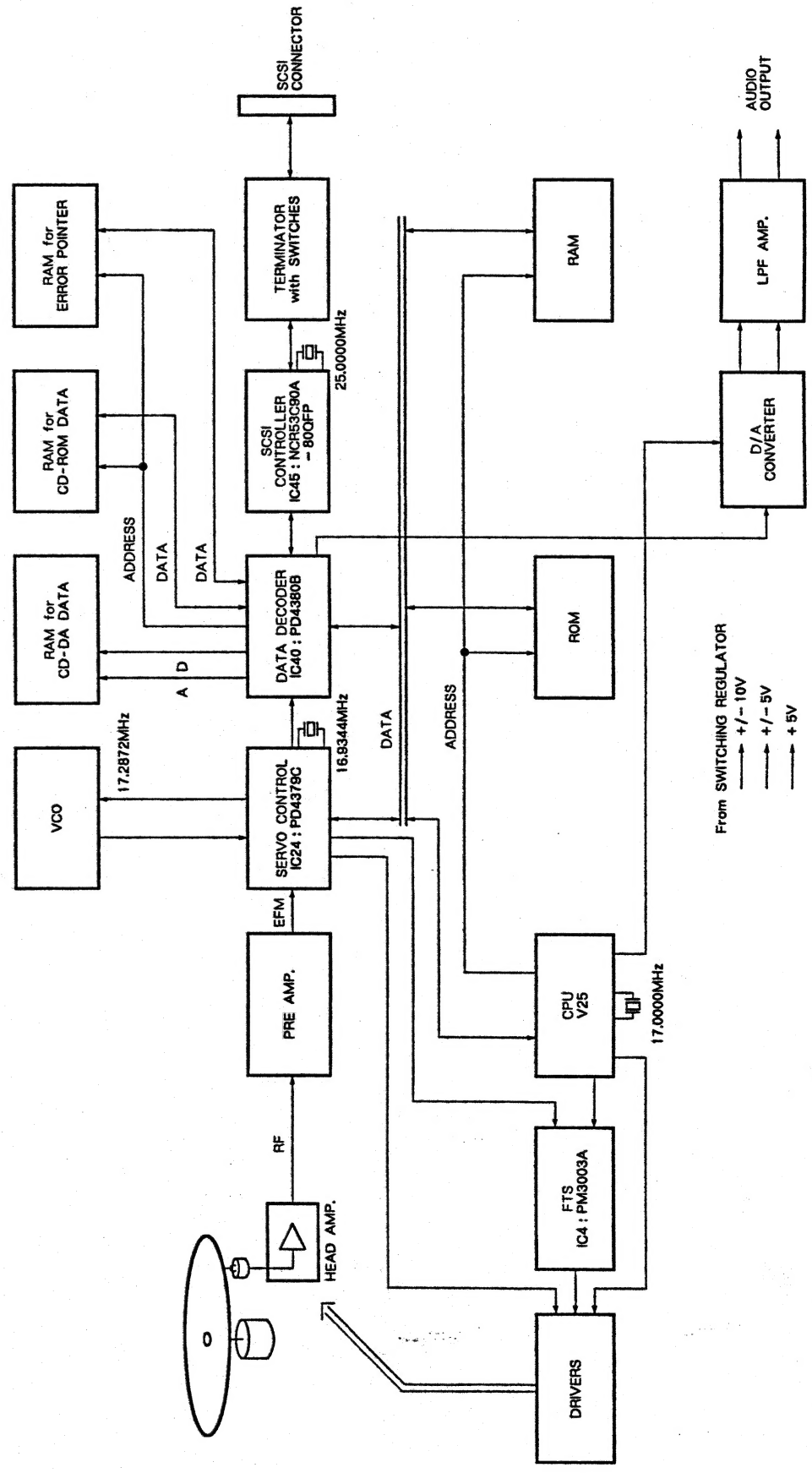
SCH-13 POSS UNIT, HEAD UNIT

3. BLOCK DIAGRAM





- This diagram is viewed from the gray colored foil side.
- This PCB is double sided.



POSS UNIT,
HEAD UNIT

SCH-13